



UNIVERSIDADE DE
COIMBRA

Maria Joana Girão Marta Simões

EDUCATING FOR A POSITIVE BODY IMAGE:
A programme for the promotion of girls' psychological
flexibility and compassion

Tese no âmbito do Doutoramento em Psicologia, especialidade em Psicologia
Clínica, orientada pela Professora Doutora Cláudia Rute Carlos Ferreira, e
pela Professora Doutora Tracy L. Tylka, apresentada à Faculdade de
Psicologia e de Ciências da Educação da Universidade de Coimbra.

Fevereiro de 2022



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Title	Educating for a positive body image: A programme for the promotion of girls' psychological flexibility and compassion
Author	Maria Joana Girão Marta Simões
Scientific Supervision	<p>Professora Doutora Cláudia Rute Carlos Ferreira, Faculdade de Psicologia e de Ciências da Educação, Universidade de Coimbra</p> <p>Professor Tracy L. Tylka Department of Psychology, Ohio State University</p>
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The great object of life is Sensation – to feel that we exist – even though in pain – it is this ‘craving void’ which drives us to Gaming – to Battle – to Travel – to intemperate but keenly felt pursuits of every description whose principal attraction is the agitation inseparable from their accomplishment.

Lord Byron to Annabella Milbanke, 6 September 1813

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Note. Standardized path coefficients among variables are presented.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

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 A B S T R A C T

In contrast to the extensive past of research on negative body image, research on positive body image is recent, yet increasingly flourishing, and considered the future of body image research. It is believed that the promotion of a positive body image goes beyond the simple elimination of negative symptoms, focusing on the promotion of personal growth and protection factors, which enable the maintenance of therapeutic gains and the prevention of relapses. From studies conducted in this area, the associations of body appreciation (a facet of positive body image) with unconditional acceptance by others, acceptance-based coping styles, and self-compassion stand out. Still, it is during adolescence that the foundations of a positive body image are built, although there are only a few interventions to promote body appreciation in this developmental period. Based on this gap, the present investigation aimed to fulfill three specific objectives: *i*) to analyze the psychological processes and mechanisms of emotional regulation that influence body appreciation; *ii*) to examine the relationship of body appreciation with the display of disordered eating behaviors, and with the quality of life of women and female adolescents; and *iii*) to test the efficacy of a psychotherapeutic programme to promote psychological flexibility and compassion, with a strong component of mindfulness training – the “#KindGirlsInAction” programme – with an expected positive impact on body appreciation of female adolescents.

In order to explore the feasibility of the proposed objectives, the present investigation comprised cross-sectional studies (Studies I, II, IV, V, VI and VII), conducted in samples of adult women and female adolescents; longitudinal (Study III) and experimental (Study VIII) studies, conducted in samples of female adolescents. In these studies, subjects completed self-report measures that assessed early memories of warmth and safeness, feelings of social safeness and pleasure, positive affect, psychological inflexibility, self-compassion and compassion from others, body appreciation, functionality appreciation, disordered eating behaviors and quality of life. The

non-randomized controlled study (Study VIII) tested the efficacy of the #KindGirlsInAction psychotherapeutic intervention programme.

The results of the cross-sectional studies (I, II, IV, V, VI and VII) pointed to the direct and positive associations of early memories of warmth and safeness, feelings of social safeness and pleasure, safeness/contentment positive affect, self-compassion, and functionality appreciation, with body appreciation. Psychological inflexibility showed a direct and negative association with body appreciation. Furthermore, body appreciation emerged as being directly and negatively associated with the display of disordered eating behaviors, and positively associated with several dimensions of quality of life. The longitudinal study (Study III) confirmed the mediating role of feelings of social safeness and pleasure in the relationship between early memories of warmth and safeness and body appreciation. Finally, the results of the experimental study of the efficacy of the #KindGirlsInAction programme (Study VIII) revealed a significant increase in the levels of feelings of social safeness and pleasure, self-compassion, and body appreciation along the intervention, and between the end of the intervention and the three-month follow-up assessment, in the participants of the intervention group. In the control group participants, there was a decrease in the levels of feelings of social safeness and pleasure, self-compassion, and body appreciation over time.

The results of the present investigation provide evidence-based knowledge about the psychological complexity inherent to positive body image, through the development of an innovative, integrative, and comprehensive model of body appreciation in women and female adolescents. The present investigation also adds to the field of body image through the test of efficacy of a psychotherapeutic intervention programme for female adolescents, based on psychological flexibility, compassion and mindfulness practice, which was shown to be capable of promoting body appreciation. The present investigation leads the way for future investigations with more robust methodologies, which aim to deepen the knowledge about positive body image from the perspective of psychological processes and adaptive emotional regulation mechanisms

that underlie it. By following this path, interventions that promote body appreciation may benefit from a broad positive impact on the well-being and mental health of adolescents.

Keywords: positive body image; body appreciation; adolescence; mental health; well-being; emotion regulation; acceptance and commitment therapy; mindfulness; compassion-focused therapy; #KindGirlsInACTion programme.

RESUMO

Contrastando com o extenso passado de investigação em imagem corporal negativa, a investigação em imagem corporal positiva é recente, contudo em crescente florescência, e considerada como o futuro da investigação em imagem corporal. Acredita-se que a promoção de uma imagem corporal positiva supera a simples eliminação de sintomas negativos, dirigindo-se à promoção de fatores de crescimento pessoal e de proteção, os quais possibilitam a manutenção de ganhos terapêuticos e a prevenção de recaídas. Dos estudos conduzidos nesta área, salientam-se as associações do apreço pelo corpo (uma faceta da imagem corporal positiva) com a aceitação incondicional por parte dos outros, estilos de *coping* baseados na aceitação, e a autocompaixão. De notar a ainda que é na fase da adolescência que se constroem as bases de sustentação de uma imagem corporal positiva, sendo, porém, escassas as intervenções de promoção de apreço pelo corpo neste período do desenvolvimento. Tendo por base esta lacuna, a presente investigação propôs-se cumprir três objetivos específicos: *i*) analisar os processos psicológicos e mecanismos de regulação emocional que influenciam o apreço pelo corpo; *ii*) examinar a relação do apreço pelo corpo com a exibição de comportamentos alimentares perturbados, e com a qualidade de vida de mulheres e adolescentes do sexo feminino; e *iii*) testar a eficácia de um programa de promoção de flexibilidade psicológica e de compaixão, e de prática de *mindfulness* – “#KindGirlsInACTion” - com impacto positivo esperado no apreço pelo corpo de adolescentes do sexo feminino.

De forma a explorar a viabilidade dos objetivos a que se propôs, a presente investigação compreendeu estudos de carácter transversal (Estudos I, II, IV, V, VI e VII), em amostras de mulheres adultas e adolescentes do sexo feminino; longitudinal (Estudo III) e experimental (Estudo VIII), em amostras de adolescentes do sexo feminino. Nestes estudos, os sujeitos preencheram medidas de autorresposta que avaliaram memórias precoces de calor e afeto, sentimentos de segurança e prazer em contextos sociais próximos, afeto positivo, inflexibilidade


psicológica, autocompaixão e compaixão dos outros, apreço pelo corpo, apreço pela funcionalidade do corpo, comportamentos alimentares perturbados e qualidade de vida. O Estudo controlado não randomizado número VIII testou a eficácia do programa de intervenção *#KindGirlsInAction*.

Os resultados dos estudos transversais (I, II, IV, V, VI e VII) apontaram para relações diretas e positivas das memórias precoces de calor e afeto, dos sentimentos de segurança e prazer em contextos sociais próximos, do afeto positivo associado à segurança e ao contentamento, da autocompaixão, e do apreço pela funcionalidade do corpo, com o apreço pelo corpo. A inflexibilidade psicológica apresentou uma associação direta e negativa com o apreço pelo corpo. Ainda, o apreço pelo corpo surgiu direta e negativamente associada à exibição de comportamentos alimentares perturbados, e positivamente associado a várias dimensões da qualidade de vida. O estudo de caráter longitudinal (Estudo III) confirmou o papel mediador dos sentimentos de segurança e prazer em contextos sociais próximos na relação entre memórias precoces de calor e afeto e apreço pelo corpo. Finalmente, os resultados do estudo experimental da eficácia do programa *#KindGirlsInAction* (Estudo VIII) revelaram um aumento significativo nos níveis de sentimentos de segurança e prazer em contextos sociais próximos, autocompaixão e apreço pelo corpo ao longo da intervenção, e entre o término da intervenção e a avaliação de *follow-up*, nas participantes do grupo de intervenção. Nas participantes do grupo de controlo observou-se um decréscimo nos níveis de sentimentos de segurança e prazer em contextos sociais próximos, autocompaixão e apreço pelo corpo ao longo do tempo.

Os resultados da presente investigação proporcionam conhecimento baseado na evidência sobre a complexidade psicológica inerente à imagem corporal positiva, através da elaboração de um modelo inovador, integrador e compreensivo do apreço pelo corpo em mulheres e adolescentes do sexo feminino. Acresce, ainda, o teste de eficácia de um programa de intervenção psicoterapêutico para adolescentes do sexo feminino, baseado na flexibilidade psicológica, compaixão e prática de *mindfulness*, que se mostrou capaz de promover o apreço

pelo corpo. A presente investigação trilha um caminho para investigações futuras com metodologias mais robustas, que almejem aprofundar o conhecimento sobre a imagem corporal positiva na perspectiva dos processos psicológicos e mecanismos de regulação emocional adaptativos que lhe subjazem. Travando este caminho, intervenções que promovam o apreço pelo corpo poderão beneficiar de um impacto positivo alargado ao bem-estar e saúde mental dos adolescentes.

Palavras-chave: imagem corporal positiva; apreço pelo corpo; adolescência; saúde mental; bem-estar; regulação emocional; terapia de aceitação e compromisso; mindfulness; terapia focada na compaixão; programa #KindGirlsInAction.

 P R E F A C E

Body image is an intricate and multifaceted concept that involves perceptions, thoughts, behaviours, and attitudes regarding the body and appearance (Gardner, 1996; Grogan, 2016). It is defined as a mental picture of one's own body (Schilder, 1935). Historically, most of the studies in the field of body image have covered the themes of negative body image and, specifically, body dissatisfaction (Cash & Smolak, 2011).

Body image dissatisfaction is considered a serious and widespread problem in adolescence (Neumark-Sztainer et al., 2002), mostly affecting teenage girls (Ricciardelli & McCabe, 2001). The seriousness of this phenomenon is assessed by its close association with psychological distress, self-esteem difficulties, depressive mood, physical activity avoidance, dysfunctional exercise, restrictive eating, bulimic tendencies, obesity, and eating disorders (Wang et al., 2019; Neumark-Sztainer, 2007; Voelker et al., 2015; Wertheim et al., 2001). In the last decades, many efforts have been carried out to try to reduce dissatisfaction with body image in adolescents, with most of these efforts focused on reducing the negative symptoms associated with it (Cash, 2004).

Although this focus on body dissatisfaction has enriched science with core knowledge for the treatment of disorders associated with body image and eating behaviour, recent perspectives on the field of body image advocate the adoption of a positive approach, i.e., the study and the promotion of positive body image (Seligman, 2002). Positive body image is not the contrary of body dissatisfaction (Wood-Barcalow et al., 2010). Actually, it defines as an attitude of love and respect for the body, along with appreciation of the beauty and the functionality of the body, acceptance of bodily characteristics despite the recognition of less prized body features, inner positivity influencing outer conduct, an emphasis on body's assets rather than on imperfections, and filtering information in a body-protective way (Wood-Barcalow et al., 2010). It is believed

that by promoting positive body image, it is possible to go beyond the reduction or elimination of negative symptoms, to the promotion of protective factors that allow the long-term maintenance of therapeutical gains, and the prevention of relapses (Tylka, 2011; Smolak & Cash, 2011; Voelker et al., 2015).

One of the most associated factors with the emergence of problems related to body image and eating is difficulties in emotion regulation (e.g., Monell et al., 2015). Indeed, several studies conducted in this area pointed to self-criticism, shame, and psychological inflexibility as being risk factors (Ferreira et al., 2016; Webb, 2015). On the other hand, therapeutic interventions based on compassion, and on acceptance and commitment have shown to be quite promising in terms of reducing symptoms of body image dissatisfaction (Goss & Allan, 2014; Juarascio et al., 2013). Nonetheless, only a few studies have attempted an emotion regulation-based approach to promote positive body image in adolescents (Alleva et al., 2015).

Considering the existence of consistent evidence that validate the urgency of intervening in adolescents to prevent problems associated with body image, and the lack of interventions focused on promoting protective and preventive mechanisms in this area, the main objectives of the present Thesis are *(i)* to explore and discuss the impact of several adaptive emotion regulation mechanisms and psychological processes in female adolescents' positive body image (through the facet of body appreciation), and the association of body appreciation with indicators of disordered eating and perceived quality of life; and *(ii)* to test an intervention programme designed to empower teenage girls to embrace a more positive attitude towards one's self and body image.

To achieve the first purpose, cross-sectional and longitudinal studies were carried out to understand the factors and mechanisms associated with positive body image in Portuguese female adults and adolescents. Based on these results, the implementation and test of efficacy of a school-based programme based on Compassion Focused Therapy, Acceptance and

Commitment Therapy and mindfulness practices – the “KindGirlsInACTion programme, was then carried out.

Considering the theoretical foundation of the present work, its development process and the scientific productions that derived from it, the present work is composed of five distinct parts, divided into several sections.

Part I – Theoretical background. The **first section** presents a historical conceptualization of the study of body image, with an emphasis on the study of negative body image, and in the developmental phase of adolescence. It is also made a rationale for the choice and relevance of specifically studying the body image of female adolescents. The **second section** presents a more recent approach to body image, that is the study of positive body image. In addition to presenting its definition, as well as the constructs that derive from it, the advantages of studying body image in a positive perspective are presented, with a focus the component of body appreciation and on the developmental phase of adolescence. The **third section** of Part I also describes some factors associated with positive body image in adolescence. Moreover, in a positive perspective, some of the most impacted areas by positive body image in adolescence are synthesized, namely quality of life and psychological health, and eating behaviour. In this section, an emphasis is given to the association of body appreciation, a facet of positive body image, with psychological flexibility, compassion, and mindfulness. The **fourth section** of the Introduction presents previous interventions to promote positive body image in female adults and adolescents, with a focus on their theoretical foundation, strengths, and limitations.

Part II – Aims of this Thesis, focuses on the rationale and aims of this thesis and provides a logical sequence to the empirical studies.

Part III – Method, includes information regarding research aims and general methodology (procedures, measures, ethical compliance,) and an overview of the methodological options of the studies included in this thesis.

Part IV - Empirical studies, consists of three interconnected sections that present cross-sectional, longitudinal empirical and experimental studies that aimed at further understanding body appreciation, and to test the efficacy of the #KindGirlsInACTion programme in improving body appreciation. The **first section** presents empirical studies on the association between psychological processes, emotion regulation and body appreciation; the **second** focuses on body appreciation's relationship with eating behaviour and quality of life; and finally, the **third section** reports the test of efficacy of the #KindGirlsInACTion Programme, in improving body appreciation of Portuguese adolescent girls.

Part V – General discussion, synthesizes and presents an overall discussion of the main findings of this work. A global model for the understanding of body appreciation is proposed, and its implications are discussed. Also, this Part enumerates the strengths and limitations of the present investigation, providing recommendations for future research. A conclusion summarizes the main contributions of the studies presented, ending the Thesis.

THEORETICAL BACKGROUND

1. BODY IMAGE
2. POSITIVE BODY IMAGE
3. CORRELATES AND CONSEQUENCES OF A POSITIVE BODY IMAGE
4. INTERVENTIONS TO PROMOTE POSITIVE BODY IMAGE: AN OVERVIEW

Theoretical Background

1. Body Image

1.1. What is body image?

Body Image is a complex and multidimensional concept. The term was firstly referred by Schilder (1935) who defined it as a picture, or a mental representation of one's own body. Body image entails several components: perceptual, that is the way one sees his/her body, which does not necessarily correspond to its actual appearance; affective, which associates to the way one feels about his/her body, namely the level of body satisfaction or dissatisfaction; cognitive, that is the way one thinks about his/her body, that is evaluations, comparisons, etc.; and behavioural; which relates to one's actions toward the body, for instance, to check on or alter the body (Cash & Pruzinsky, 1990). In a more synthetic fashion, Grogan conceptualizes body image as mainly incorporating the appraisal of body size, estimation of attractiveness, and emotions related with its shape and size (Grogan, 2016).

The development of body image is considered a dynamic process. Actually, body image is influenced by one's characteristics, for instance physical aspects (body shape and size), psychological (perfectionism, self-esteem), and by the social and cultural contexts surrounding the individual, such as beauty standards or body-image related social pressures (Cash, 2002). Despite this complex, multifaceted and dynamic nature, historically, the vast majority of the studies the body image area focused on the study of negative body image, more specifically on the construct of body image dissatisfaction (Cash & Smolak, 2011).

1.2. Negative body image

Negative body image is described as an emphasis on body size, shape, or appearance-based negative comparisons in relation to unrealistic internalized body standards (Cash &

Pruzinsky, 1990). It is often expressed by dissatisfaction in relation to one's body or body parts, concern about one's appearance, and by the engagement in body checking behaviours, self-weighing, or avoidance of situations in which the body may become exposed (Menzel et al., 2011). Research on negative body image has mainly focused on its affective aspect, that is body image dissatisfaction. Specifically, body dissatisfaction can be defined as a negative attitude concerning one's own body that results from a perceived divergence between the actual body image and the idealized body image (Cash, 2011; Cooper & Taylor, 1988).

The large number of studies on negative body image or, specifically, body dissatisfaction, is easily legitimized, first since one's own subjective experience of his/her appearance is considered to be more psychologically and socially powerful than its actual appearance (Cash, 2004), and also because body dissatisfaction was found to be inherently linked to several psychological and psychiatric difficulties, particularly eating disorders. These associations nurtured a vast stream of scientific research that provided important and highly informative knowledge (Cash & Pruzinsky, 2004; Thompson, 2004).

1.3. Negative body image in the adolescent stage

Adolescence is considered an age period of special attention regarding body image dissatisfaction. There are several reasons that validate this special consideration, which are fundamentally related to the physical physiological, social, and psychological changes which adolescents go through (Cash & Smolak, 2011). Still, body dissatisfaction is a phenomenon more marked in female adolescents, compared to boys (Allgood-Merten et al., 1990), and takes on significantly different contours in girls and boys (Lawler & Nixon, 2011; Schaefer & Salafia, 2014). Specifically, it seems that girls present higher body dissatisfaction, and higher vulnerability regarding the impact of body image dissatisfaction on self-esteem and on eating patterns (e.g., Mäkinen et al., 2012). Regarding boys, body image appears to be mainly affected by negative

social influences that increase drive for muscularity and weight concerns (Helfert & Wearchburger, 2011; Schaefer & Salafia, 2014).

Research findings point to an intense rise in girls' body dissatisfaction following puberty (e.g., Rosenblum & Lewis, 1999), and body dissatisfaction is so widespread among teenage girls that it has been referred to as "normative discontent" (Rodin et al., 1984). The discrepancy between girls' and boys' body image may be explained by the biological changes that puberty entails for female adolescents, namely a larger deposit of fat tissue that affects body size and shape, and acne (Cash & Smolak, 2011). These are challenges that rise the gap between adolescents' self-perceptions on their body image and the standards of beauty advocated by the media (Thompson et al., 1999). Specifically, as physical and emotion maturation occurs, teenage girls mainly identify with stereotypes that relate to their own gender and the female stereotype. Body image thus becomes key to adolescent girls' self-definition, since the female considers physical attractiveness as a central dimension for self-evaluations and for evaluation by others (Thompson et al., 1999). Also, thinness is indissolubly linked to physical attractiveness in Western culture females (Stice et al., 1994, 2000). Indeed, according to Striegel-Moore and Cachelin's model on the etiology of body dissatisfaction and disordered eating in girls (1999), it is the internalization of socially prescribed beauty ideals and thinness that triggers a discrepancy between girls' actual body shape and the idealized body shape promoted by society, and often leads to unbalanced dieting, a well-established precursor of eating disorders.

In addition to the factors mentioned, i.e., pubertal bodily changes and internalization of the thinness ideal, other factors have been associated with a more marked body dissatisfaction in female adolescents. Namely, the emergence of menarche, with early maturing girls presenting higher body image dissatisfaction (McCabe & Ricciardelli, 2004); a larger body size and increased body mass index (Wertheim et al., 2004; McCabe & Ricciardelli, 2003); peers' and parents' concerns about weight and dieting (Newmark-Sztainer et al., 2003); ethnicity, with African

American girls presenting less body dissatisfaction than European American girls (Neumark-Sztainer et al., 2002); and personality attributes such as higher perfectionism (Cash, 2002).

The attention given by research on body dissatisfaction lies fundamentally in the fact that it is associated with several indicators of poor well-being and mental health. Indeed, a meta-analysis by Stice (2002) has showed that body dissatisfaction is “one of the most consistent and robust risk and maintenance factors for eating pathology” (Stice, 2002, p. 833). In fact, to cope with body dissatisfaction, the use of dangerous weight and body concealing strategies, such as fasting, use of diet pills and laxatives, and vomiting, are reported in many adolescents, specifically 12.4% and 4.6% of girls and boys (Neumark-Sztainer et al., 2002). Body dissatisfaction is also an identified prospective predictor of depressed mood (Carapeto et al., 2020; Paxton et al., 2006).

In the past decades, an increase in the awareness of the prevalence of body and eating-related disorders, and of the early onset of such difficulties, has validated the investment in the study of the consequences of body dissatisfaction (Cash, 2004). Body dissatisfaction is indeed a direct link to elevated dieting, a factor known to increase the risk for the beginning and maintenance of eating disorders (Rohde et al., 2015; Stice, 2016). In addition to these direct effects on eating behaviour, body dissatisfaction negatively affects quality of life in terms of mental health and social functioning (Mond et al., 2013), and loss of functionality at work, home, and in social relationships (Mond & Hay, 2007). Body dissatisfaction is also positively associated with negative affect, depression onset, and even suicidal ideation (Kim & Kim, 2009). Finally, overweigh and obesity (Haines et al., 2007), and appearance rumination and the impulsive resort to needless cosmetic surgery (Ohring et al., 2002) are also associated with body image dissatisfaction.

Despite the importance of studying and evaluating factors that influence negative body image and body dissatisfaction, as well as other maladaptive body image processes that associate with psychopathology, it is currently considered that the future of the field of body image will lay on the exploration of positive influences on body image across the life span, as well as on the

study of adaptive body image processes and their consequences in clinical practice, that is positive body image (Cash, 2004).

2. Positive body image

Currently, the study of positive, adaptive, and healthy side of body image is considered essential for the future of the body image field (Smolak & Cash, 2011). Historically, positive body image has been less considered due to the predomination of a focus on negative body image to explain psychopathological associated phenomena (Smolak and Cash, 2011, Tylka, 2011). Nonetheless, not only this tendency is considered to implicate limitations in achieving a comprehensive understanding of body image, but also restrains the success of interventions with body image difficulties. Specifically, by focusing solely on the reduction of negative body image symptoms, therapies can only aim at promoting a neutral body image. In contrast, cultivating a positive body image is believed to contribute for individuals' optimal functioning, effective and lasting treatment gains, and for the prevention relapse in body image-related difficulties. In conclusion, without promoting health and well-being, interventions may end up not being successful regarding the prevention and treatment of body image disturbances (Tylka & Wood-Barcalow, 2015a).

2.1. How can we define positive body image?

“An overarching love and respect for the body that allows individuals to (a) appreciate the unique beauty of their body and the functions that it performs for them; (b) accept and even admire their body, including those aspects that are inconsistent with idealized images; (c) feel beautiful, comfortable, confident, and happy with their body, which is often reflected as an outer radiance, or a “glow;” (d) emphasize their body's assets rather than dwell on their imperfections; and (f) interpret incoming information in a body-protective manner whereby most positive information is internalized and most negative information is rejected or reframed” (Wood-Barcalow et al., 2010, p. 112) are the characteristics that define positive body image.

For a more comprehensive understanding of this definition, it should be noted that the fact that an individual has a positive body image does not mean that he or she is not able to

identify unwanted features in his/her body, or that he or she has never experienced a negative body image or body image dissatisfaction. In fact, after studying the motivations and actions of a sample of individuals with positive body image, Wood-Barcalow and colleagues (2010) found that individuals with positive body image are not only able to identify body image dissatisfaction but are grateful for being able to change their evaluation of such body characteristics to positive. Actually, positive body image is a distinct construct from negative body image. These do not stand on opposite ends of a continuum, and reducing negative body image does not result in the increase of positive body image (Tylka & Wood-Barcalow, 2015a). Negative and positive body image are two different constructs that are negatively correlated (e.g., Avalos et al., 2005; Tylka, 2011).

When dealing with negative body image, individuals with positive body image thus seem to be specially equipped to deal with undesired body characteristics (Wood-Barcalow et al., 2010). To do so, these individuals invest in expressing love to their bodies; they diminish their efforts into concealing body imperfections; they reflect about media and socially prescribed beauty standards and conclude that they mostly constitute unrealistic and unnatural images, and also intentionally reduce their contact with such images; and they try to surround themselves with people with a positive body image, who accept their appearance and focus on their personality strengths. Regarding the protection of their body's health and functionality, these individuals try to make healthy food choices, and have an intuitive eating style (Wood-Barcalow et al., 2010).

Authors in the field of positive body image also note that the construct is not unidimensional and does not lay solely in the extent to which individuals assess their appearance and appear to be satisfied with such evaluation (Tylka & Wood-Barcalow, 2015a). Positive body image is a **multidimensional construct** comprised by several facets (Tylka & Wood-Barcalow, 2015a; Wood-Barcalow et al., 2010). Positive body image is also **holistic**, since its facets are better understood together than individually (Tylka & Wood-Barcalow, 2015a). First, **body appreciation**

is one the most studied facets of positive body image, defining as an attitude of acceptance and respect in relation to the body (i.e., body features, functionality, and health), having a favorable and satisfactory opinion about one's own body and rejecting the society and media-promoted ideals of appearance and beauty (Avalos et al., 2005). A second facet of positive body image is **body acceptance and love** (Tylka & Wood-Barcalow, 2015a), defined as one's ability of self-directing body love and comfort, regardless of not being completely pleased with all features of his or her body. The attitude of body acceptance and love entails accepting one's unique characteristics, rather than trying to align them with imposed ideals, and focusing on body functionality and body assets and strengths, rather than in perceived body flaws. Third, **broadly conceptualizing beauty** (Wood-Barcalow et al., 2010) is understanding beauty as including multiple appearances, whether appearance aspects can be modified or not. When someone has a broad conceptualization of beauty, one can include in this conceptualization aspects that are not directly related to physical beauty, believing that these aspects appear and are expressed in the person's physical appearance. An example of this attitude is considering that having a confident attitude, or being generous, increases beauty. **Adaptive appearance investment** (Tylka & Wood-Barcalow, 2015a) is also a positive body image facet, that entails the regular engagement in self-care behaviours that enhance one's natural features in a healthy and benign way. The fifth facet of positive body image is **inner positivity** (Tylka & Wood-Barcalow, 2015a), defined as the association of positive body image, positive affect, and adaptive and healthy behaviours. Examples of inner positivity are smiling and holding the head up. Finally, **filtering information in a body-protective manner** (Wood-Barcalow et al., 2010) contributes to positive body image since it allows individuals to accept body positive information and reject influences that can endanger one's body.

Finally, it is important to note that positive body image is considered to be simultaneously **stable and malleable** (Tylka & Wood-Barcalow, 2015a). Positive body image is stable, in the sense that it allows fluctuations without being significantly evidenced or impacted. Moreover, it is also

malleable since it can be promoted, improved, and maintained with specific interventions. This aspect further underlines the pertinency of researching potentially positive body image enhancing factors for those with a lower trait positive body image, or for those who for some reason positive body image was significantly impacted (Tylka & Wood-Barcalow, 2015a).

2.2. What influences and maintains positive body image?

The study of individuals with positive body image allowed to understand that precursors and consequences of positive body image are understood as acting in a cyclical manner, i.e., these factors promote positive body image and contribute for its maintenance (Wood-Barcalow et al., 2010). Williams and colleagues (2004) identified several **personal characteristics and coping styles** that were associated with positive body image in women, namely higher levels of optimism, self-esteem, higher levels of acceptance-based coping, a decreased tendency for perfectionistic self-presentation, and lower levels of avoidance-based coping. Another identified factor was to perceive **body acceptance by others** (Tylka & Wood-Barcalow, 2015a). These agents of acceptance are mainly peers, family, romantic partners, spiritual higher powers, and general society. Self-perceived body acceptance by others promotes and maintains positive body image since it lowers the need to be focused and concerned with the characteristics of their appearance and on the need to improve their bodies, allowing more attention towards other aspects of their bodies, such as health and functionality. The type of messages that express the idea of body acceptance by others are related to sensitive messages about interchangeable characteristics of appearance (e.g., hairstyle), and messages associated to the benefits of feeling love and of being protective of one's body. Still, another factor that allows the perception of body acceptance by others is the low frequency of conversations and comments focused on the appearance of others.

Spirituality appears as one other influence of positive body image. Specifically, individuals with positive body image believe that they were created by a higher power, in a special and

unique way, and that therefore they owe respect to this entity, being the appreciation and care for their bodies an effective way of honoring this gift (Wood-Barcalow et al., 2010).

Also, positive body image seems to be **shaped by social identities**. This means that there is not a universal positive body image, as some aspects of culture, race, gender, socioeconomics, among others, may influence the way positive body image is expressed (Tylka & Wood-Barcalow, 2015a). Culture, for instance, influences the way one conceptualizes and experiences positive body image (Tiggemann, 2015). **Age** also shapes positive body image, for instance, older women seem to be more able to focus on their bodies' functionality, instead of focusing solely on its appearance (Tiggemann & McCourt, 2013). Regarding **gender**, it seems that men tend to present higher levels of body appreciation comparing to women (Tylka & Wood-Barcalow, 2015a).

3. Correlates and consequences of a positive body image

Although the investment in studying positive body image is recent, there are several studies reporting correlates and consequences of positive body image. Overall, these studies emphasize its adaptive character.

Studies have pointed that having a positive body image, measured by body appreciation, is **inversely associated with several malign psychological processes and behaviours that are connected to body image and eating related disorders**, namely body dissatisfaction, body image avoidance, body surveillance and shame, body checking behaviours, and internalization of societal appearance ideals (Avalos et al., 2005, Swami et al., 2012, Tylka, 2013, Tylka & Kroon Van Diest, 2013). Body appreciation associates negatively with the tendency to compare oneself to others, and to assess one's worth based on appearance (Homan & Tylka, 2015). In fact, body appreciation is inversely related to eating disorder symptomatology (Tylka & Kroon Van Diest, 2013).

Body appreciation is highlighted as a predictor of intuitive eating (Innantuono & Tylka, 2012; Tylka & Kroon Van Diest, 2013). Indeed, positive body image facets are known to **associate positively with indicators of good psychological functioning and well-being**, such as self-esteem, optimism, proactive coping, positive affect, life satisfaction, and self-compassion (Avalos et al., 2005, Swami et al., 2008, Tylka & Kroon Van Diest, 2013, Wasylikiw et al., 2012).

In the specific developmental phase of adolescence, body appreciation appears as being strongly associated with higher self-esteem, life satisfaction, self-perceived health, body functionality, balanced dieting, and engagement in physical activities (Baceviciene & Jankauskiene, 2020; Piko et al., 2020). In a study by Urke and colleagues (2021), a high magnitude positive association was found between body appreciation and mental well-being in late adolescence. In turn, body appreciation seems to be negatively correlated with several non-adaptive and unhealthy tendencies, namely binge drinking, dieting, family history of eating

disorders (Piko et al., 2020), and eating disorder symptomatology (Baceviciene & Jankauskiene, 2020).

3.1. The association of positive body image and psychological flexibility

Acceptance and Commitment Therapy (ACT) is an empirically validated psychological intervention based on acceptance, mindfulness and commitment, and behaviour-change strategies that aim to increase psychological flexibility (Hayes et al., 1999). ACT is considered a third wave cognitive-behavioural psychotherapy. One of the particularities of the ACT model is that it considers the basis of Human suffering to be the context surrounding one's verbal and cognitive activity, and not the content of verbal and cognitive activity. Specifically, as Human behaviour becomes dominated by inflexible verbal processes, individuals tend to make confused and subjective descriptions of events. Behaviours thus become more guided by verbal processes than by environmental contingencies, and individuals miss the opportunity of engaging in values-driven behaviours.

In contrast, **psychological flexibility** defines as “the process of contacting the present moment fully as a conscious Human being and persisting or changing behaviour in the service of chosen values.” (Hayes et al., 2006, p. 9). This process is believed to increase voluntary contextual control over the functions of verbal and cognitive events, resulting in the engagement in behavioural repertoires guided by chosen values. According to the ACT model, six core processes produce psychological flexibility: acceptance, cognitive defusion, self as context, contact with the present moment, values clarity and committed action. Acceptance and cognitive defusion are considered mindfulness and acceptance processes; self as context and contact with the present moment are considered to be both mindfulness and acceptance processes and commitment and behaviour change processes; and values clarity and committed action are commitment and behaviour change processes (Hayes et al., 2006). These core processes are commonly diagrammed

as a hexagon named “hexaflex”. The six processes are interrelated, i.e., a change in one of the processes often results in changes in other processes (Hayes et al., 2012).

Acceptance is the flexible alternative to experiential avoidance. It involves actively and consciously contacting with and embracing internal events without attempting to change their frequency or form (i.e., avoidance), especially when doing so can hold negative psychological consequences (Hayes et al., 2006). **Cognitive defusion** aims at changing unwanted functions of internal events (i.e., the way one relates and interacts with internal events), instead of trying to change their form, frequency, or situational sensitivity. Defusion techniques attempt to decrease the literality of thoughts, and to reduce the tendency to treat the thought as if it was an absolute truth, resulting in a loss of attachment toward private events (Hayes et al., 2006). **Contact with the present moment** or “being present” promotes a more direct experience of the world, resulting in a contact with psychological and environmental events as they occur (Hayes et al., 2006). Envisioning the **self as context** allows the individual to be mindful and conscious of the flow of experiences, without becoming attached to certain internal events over others (Hayes et al., 2006). Identifying core life **values** is choosing qualities of purposive actions, providing meaning to one’s behaviours. To note that, unlike goals, values can never be fulfilled and completed, but can be instantiated moment by moment (Hayes et al., 2006). Finally, **committed action** implies a broad pattern of values-based actions, and is considered vital to the pursuit of a meaningful life (Hayes et al., 2006).

Regarding the association between positive body image and psychological flexibility, one of the influences of positive body image may explain the bridge between the two. Buddhism is considered an important influence in the emergence of positive body image, an Asian philosophy that theorizes Human suffering as rooted in rigid and repeated attempts to avoid or control adverse thoughts, emotions, perceptions, and sensations (Tylka & Wood-Barcalow, 2015a). Buddhism also supports the value of holding a mindful attitude towards private events, accepting these events without trying to change or control their frequency or intensity, and choosing and

proceeding in a values-based life direction (Hayes et al., 1999). In fact, the positive body image definition (Wood-Barcalow et al., 2010) implies several processes associated with psychological flexibility. Indeed, body image flexibility may provide individuals with psychological processes that help to accept one's characteristics in the face of body image-related threats, and facilitate taking part in committed actions that represent values associated with body appreciation (Webb et al., 2014). Also, acting in psychologically flexible manner, allows individuals to perceive body image-related threats as being impermanent, temporary, and transitory, and not constituting absolute truths about oneself or one's appearance (Pearson et al., 2010). However, the literature is scarce regarding studies that directly explore the association between the constructs of psychological flexibility and positive body image.

3.2. The association of positive body image and compassion

Compassion is the core-concept of Compassion Focused Therapy (CFT), also an empirically based third wave cognitive-behavioural psychotherapy (Gilbert, 2009). In order to understand Human suffering, CFT considers the evolutionary function of Human emotions (Gilbert, 2014). Specifically, this psychotherapeutic approach considers the existence of three systems of emotions, based on its specific evolved functions: the **threat-protection system**, that aims at alerting individuals to potential threats and helps them to activate defensive responses; the **incentive and resource seeking system**, also known as drive system, that informs individuals about the accessibility of resources and rewards, and motivates seeking strategies; and the **soothing system**, that allows “rest and digest”, and emotions of contentment and openness. The activation of soothing system is highly associated with experiences of attachment, prosocial behaviour and being cared for.

Although the threat-protection system is mainly responsible for negative emotions, while the incentive and resource seeking system and soothing system are responsible for positive

emotions, positive emotions that derive from the incentive and resource seeking system are different than those produced by the soothing system (Gilbert, 2014). Specifically, the soothing system is responsible for emotions associated with lasting peacefulness, comfort, and serenity, while emotions from the drive system are high-arousal emotions that are more short-termed in terms of its positivity. In this line, CFT considers that **Human suffering resided in imbalances within the three affect regulation systems**, and aims at helping individuals respond to the activation of the threat-system with behavioural repertoires associated with the soothing system, that is to respond to self-criticism and shame with self-kindness and compassion (Gilbert, 2009, 2014).

CFT defines **compassion** in the same way as Buddhism does, i.e., “a sensitivity to suffering in self and others, with a commitment to try to alleviate and prevent it” (The Dalai Lama, 2001). Compassion holds three different orientations and directional flows, that are (i) compassion felt for other people, (ii) one’s experience of compassion from other people, and (iii) self-compassion, a sensitivity to one’s own suffering, with a commitment to try to alleviate and prevent it (Gilbert, 2014). In terms of psychotherapeutic intervention, Compassionate Mind Training (Gilbert, 2020), a core set of CFT therapeutic techniques, helps individuals to **develop key attributes and skills of compassion**. The fundamental attributes of compassion are well-being, sensitivity, distress tolerance, empathy, and non-judgement (Gilbert, 2014). The specific skills needed to attain these attributes are compassionate reasoning, compassionate behaviour, compassionate imagery, compassionate feeling, and compassionate sensation. CFT thus encourage individuals to focus on nurturing compassion (for the self and for others) when dealing with undesired internal experiences. Several techniques and exercises are used in CFT, namely breathing and posture exercises, mindfulness, compassionate imagery, compassionate letter writing, and the recurrent involvement in compassionate behaviours (Gilbert & Irons, 2005).

The association between the concepts of positive body image and of self-compassion has been suggested by Tylka and Wood-Barcalow (2015), who argued that self-compassion may add to the encouragement of a mindful attitude toward body image-related internal experiences, by

encouraging self-kindness and a sense of shared humanity (i.e., the recognition that the experience of suffering is inherent and transversal to the Human species) (Gilbert, 2016; Neff, 2003). Indeed, self-compassion has been referred to as a buffer of the consequences of body image-related unwanted experiences (Pearson et al., 2010, Webb et al., 2014), and as a moderator of the inverse relationships between body related threats and body appreciation, thus being a potential means to protect body appreciation during body-related threats. (Homan & Tylka, 2015). Nonetheless, future research is needed to complement the rare number of studies that specifically approach the association of compassion with positive body image.

3.3. The association of positive body image and mindfulness

Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2018) is a third wave cognitive therapy that was developed based on Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982), and has proven validity in improving physical and mental health. Its core construct and technique are **mindfulness**, that is “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). Mindfulness encompasses several core facets, namely observing internal and external experiences; the ability to describe internal events; the ability to act in a non-automatic fashion, i.e., deliberately and with awareness; and holding a non-judgmental attitude toward internal experiences (Baer et al., 2006). Mindfulness practices encourage individuals to recognize and accept their internal experience, with kindness, curiosity, and openness, in the present moment. Without unnecessary rumination or worrying, individuals thus become more adapted to deal with stressful events (Kabat-Zinn, 2003).

Piran (2016) indeed conceptualizes embodiment as integrating Buddhism premises and mindfulness. Although positive body image and embodiment are distinct constructs, some overlaps between the two should be noted, namely the embodiment processes of feeling

comfortable in one's body, recognizing and experience one's body functionality, perceiving bodily needs, and the promotion of health-based self-care behaviours (Menzel & Levine, 2011; Tylka, 2019). Also, attunement and mindful self-care have been pointed as potential targets in therapeutical approaches for the cultivation of positive body image among individuals with body image and eating-related difficulties (Cook-Cottone, 2015). In fact, one of the foundations for the development of positive body image theory, research and practice was the advance in interventions to promote a mindful and appreciative connection to the body (Tylka & Wood-Barcalow, 2015a).

4. Interventions to promote positive body image: An overview

As previously mentioned, recent perspectives in the field of body image encourage the adoption of a positive perspective towards body image and eating-related difficulties. In this line, the promotion of positive body image is the most consensual means to not only attain the elimination of negative symptoms, but also to acquire protective factors that allow the long-term maintenance of therapeutical gains and the prevention of relapses (Seligman, 2002; Tylka, 2011; Smolak & Cash, 2011; Voelker et al., 2015). Positive body image preventions are also believed to hold positive consequences in individuals' levels of well-being and overall health (Gillen, 2015). Regardless of the clear importance of promoting positive body image in any gender or age group, the development and implementation of programmes to promote positive body image specifically designed for adolescents seem to be of particular importance, given that the foundations of positive body image patterns are built and established during this developmental stage (Fenton et al., 2010). However, recent research does not seem to be investing in the design of interventions to promote positive body image in this age group.

Regarding the techniques that have been found to be effective in improving body image, a meta-analytic review conducted by Alleva and colleagues (2015) identified several approaches with a positive impact, namely discussing the role of cognitions in body image, teaching how to monitor and restructure cognitions, changing negative body language, guided imagery, exposure exercises, and size-estimate exercises, stress management training, relapse prevention, and psychoeducation. Overall, these effective techniques are mostly associated with classical cognitive-behavioural therapies combined with third wave psychotherapeutic approaches.

In the last years, some interventions aimed at promoting positive body image, most of them with adult samples. Although these interventions did not combine the CFT, ACT and mindfulness-based approaches, we are most interested in presenting the ones that targeted the cultivation of adaptive psychological processes and emotion regulation mechanisms. Also, the

effects of interventions mentioned below were measured using positive body image instruments, i.e., did not conclude an improvement in body image from a decrease in negative body image indicators.

4.1. Positive body image interventions in adult samples

Albertson and colleagues (2014) assessed the efficacy of a brief three-week period of **self-compassion meditation training programme** aimed at improving body satisfaction in a sample of adult women. This was a randomized controlled trial that compared results between a meditation intervention group and a waitlist control group. Body appreciation was one of the outcome variables used to measure the efficacy of the programme. The programme consisted in a set of twenty-minutes meditation practices that were sent to participants, to be practiced once a day. In the first week, participants were given an audio file for the Compassionate Body Scan, the second week's meditation was the Affectionate Breathing, and the final week's meditation was a variant of loving-kindness meditation. Results suggested that compared to the control group, women that participated in the self-compassionate meditation training showed significantly greater gains in self-compassion and body appreciation, and greater decreases in body dissatisfaction, body shame, and appearance-based contingent self-worth. Also, improvements were maintained in a three-months follow-up assessment. Overall, results of this study underlined the potential in using self-compassion and meditations practices in programmes to improve body image in adult women.

Toole and Craighead (2016) tested the efficacy of a one-week **Internet-based self-compassion training intervention, with mindfulness practices**, delivered to undergraduate women with body image concerns. The efficacy of the programme was tested comparing women who attended the self-compassion meditation training with a wait list control group. The self-compassion meditation training programme had the duration of one week. First, participants in

the intervention group visited a lab and listened to the first training exercise, a twenty-minute compassionate body scan practice. Then, they were invited to practice at home, using a self-compassion meditation training podcast that was sent to them daily, along one week. These practices included the compassionate body scan, an affectionate breathing exercise and a loving-kindness meditation. Results showed the intervention to have effects on increasing body appreciation and reducing appearance-contingent self-worth and body surveillance.

The “Eat for Life” programme (Bush et al., 2014) designed and tested the efficacy of a programme that combined **intuitive eating and mindfulness training** for the treatment of disordered eating behaviours and body image dissatisfaction. The programme was administered to female adults and respective partners/spouses, and participants were assessed prior to the intervention and post ten weeks. The “Eat for Life” is a work site–based ten-week intervention, with ten different classes. Each one of the classes started with of a formal mindfulness practice, a psychoeducational moment, and a principle of intuitive eating. Participants were also given homework assignments, mindfulness practices, and eating meditations to complete, and were invited to apply principles and tips of intuitive eating. Comparing to the wait list control group, this programme resulted in significant improvements in body appreciation, intuitive eating, and mindfulness. This study thus suggests the pertinence of integrating intuitive eating and mindfulness skills in programmes designed at changing participants’ relationships with eating and body image.

The “Expand your horizon” programme was designed to improve body image in young adult women, by focusing on body functionality (Alleva et al., 2015). The programme was delivered to a group of adult women with negative body image, and its effects were analyzed comparing to an active control group with equivalent constitution. The programme started with psychoeducation about body functionality that was followed by three **structured writing assignments**. Writing assignments are often used to facilitate cognitive restructuring. Writing assignments focused on different areas of body functionality, the first one on the body's senses

and physical capacities, the second one on health and creative endeavours, and the third on self-care and communication with others. The aim of the writing assignments was for participants to describe their bodily functions and reflect on their importance and meaningfulness. The control group assignment was to participate in a body image-neutral creativity training programme. Results pointed an increase in appearance satisfaction, functionality satisfaction, and body appreciation following the “Expand Your Horizon” intervention, as well as a decrease in self-objectification, comparing to the control group. Findings from this study seem to highlight body functionality as a useful tool to be used in programmes designed to improve positive body image.

4.2. Positive body image interventions in adolescent samples

Halliwell and colleagues (2015) tested the efficacy of a one-hour **dissonance-based body image intervention** delivered to sixty-two secondary school girls. One particular aim of this intervention was to increase body appreciation levels. Results of the intervention group were compared to a control group. The cognitive dissonance-based intervention included exercises and discussions on the themes of origins of the thin-ideal of female beauty, costs of pursuing the thin ideal, challenging negative talk, role plays, body activism, and self-affirmation. Results pointed that the intervention group showed an increase in body appreciation from the pre-intervention assessment to the post-intervention assessment, and a decrease in body dissatisfaction and thin-ideal internalization. These findings suggested that dissonance-based interventions can promote body appreciation.

To the extent of our knowledge Halliwell and colleagues’ intervention (2015) is the only positive body image intervention conducted in an adolescent sample that was formally explored in terms of its efficacy. The “BodiMojo” was a **mobile self-compassion-based intervention to improve positive body image in adolescents** (Rodgers et al., 2018). Nonetheless, this intervention did not measure positive body image outcomes. Participants were allocated either to a control

group or an intervention group, that used the “BodiMojo” mobile application (app) for six weeks. The app delivered intervention messages twice a day, allowed mood tracking and provided emotional regulation tools, and allowed participants to complete a gratitude journal. Messages followed focused on themes such as self-compassion (mindfulness, self-kindness, and common humanity), body image and media literacy, peer influences, appearance comparison, and healthy lifestyle (mindful eating, sleep hygiene, and physical activity). Some of these messages were followed by a behavioural tip or a link to an audio meditation. Participants were assessed at pre-intervention, post intervention and at a six-week follow-up. This intervention resulted in an increase in appearance esteem and self-compassion, but no significant effects were found regarding appearance comparison, body image flexibility, and negative mood. Although this programme cannot be considered a positive body image intervention, its results suggest the usefulness of self-compassion training when intervening with adolescents’ body image.

Part II

AIMS OF THIS THESIS

Aims of this Thesis

The general objective of the present Thesis was to fill some of the gaps in scientific knowledge about positive body image in female adolescents, and in the Portuguese population. In fact, the relevance of investing in research on this topic, which derives from the knowledge that positive body image holds the potential to prevent difficulties associated with body image and eating behaviour, was the main driver of this investigation. Considering that the period of adolescence is the ground where the fundamental bases of a positive body image are built, and that female adolescents are at particular risk for body image-related difficulties, the study of positive body image in this specific period of Human development seems to be of particular relevance.

To pursue this general objective, several specific objectives were delineated. The first specific objective was to **explore the roles of adaptive psychological processes, associated with Acceptance and Commitment Therapy (ACT), and of emotion regulation mechanisms associated with Compassion-focused Therapy (CFT) on body appreciation, in adult women and female adolescents**. Indeed, all these factors have been highlighted in the literature as potential means of promoting well-being and mental health, and also pointed out as effective means of reducing negative body image symptoms and difficulties associated with eating behaviour. However, there is a lack of studies in the literature that have analyzed its role in the construction of a positive body image. This thesis comprises three empirical studies on this specific topic, that can be consulted in “**Part IV – Empirical Studies**”. The first two were conducted in samples of adult women and used a cross-sectional design. The third one used a sample of female adolescents, in a longitudinal design:

- I. Marta-Simões, J., & Ferreira, C. (2019). Turning self-compassionate engagement into action: Impact on body appreciation among Portuguese women. *Journal of Contextual Behavioural Science*, *11*, 21-26. <https://doi.org/10.1016/j.jcbs.2018.11.004>.
- II. Marta-Simões, J., & Ferreira, C. (2020). The soothing-affiliation system and body appreciation: recollected and present affect. *Women & Health*, *60*, 5, 547-558, <https://doi.org/10.1080/03630242.2019.1677841>
- III. Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2022). *Early memories of warmth and safeness and current social safeness: Longitudinal contributions for girls' body appreciation* [Manuscript submitted for publication]. CINEICC, University of Coimbra.

The Study I - "Turning self-compassionate engagement into action: Impact on body appreciation among Portuguese women" explored how self-compassionate engagement and action competences could differentially impact on body appreciation, and whether psychological flexibility would act as a mediator of self-compassionate engagement's relationship with self-compassionate action. Findings from this study allowed to understand the role of psychological flexibility as a potential mediator of the effect of self-compassionate engagement on self-compassionate actions and on body appreciation. Specifically, results suggested that psychological flexibility may be involved in the positive association between self-compassionate sensitivity and motivation and effective self-compassionate action, which altogether associate with higher body appreciation. The results of Study I further supported one of the hypotheses of the present Thesis, i.e., that **both conceptual frameworks of ACT and CFT seem to be associated with positive body image constructs**. Moreover, it was suggested that the combination of strategies ACT and CFT could potentiate the promotion of positive body image in adult women.

The Study II – “The soothing-affiliation system and body appreciation: recollected and present affect” explored a model that associated memories of early affiliative relationships with body appreciation via higher current social safeness and the experience of positive affect. Results of this study showed that early memories of warmth and safeness were associated with body appreciation via higher current social safeness, and higher safeness/contentment affect. Also, safeness/contentment affect was the positive affect revealed as being more strongly related to body appreciation. Although indirectly, the data from this study came to support the **relationship established between the soothing emotion regulation system (CFT) and positive body image**, through its facet of body appreciation. Also, these findings further supported the **importance of early and current emotional bonds for women's body appreciation**, and that the cultivation of affiliation skills could be beneficial in the promotion positive body image.

The Study III – “Early memories of warmth and safeness and current social safeness: Longitudinal contributions for girls’ body appreciation” allowed further support of the findings of Study II in a longitudinal design, and using a sample of female adolescents. Specifically, Study II aimed at exploring the associations between early positive memories, current social safeness, and body appreciation along twelve months, and to explore the mediating effect of social safeness feelings in the association between early memories of warmth and safeness and body appreciation. Several important findings derived from this study. The first one was the positive over time correlations between the variables in study. Also, this study pointed that the means of the variables in study **decreased along the twelve months**. These findings gave further support to the association interpersonal factors, such as memories of early relationships that were characterized by feelings of warmth, safeness and protection, the experience of the sample feelings in one’s current social contexts and body appreciation. Also, these results pointed that without a specific intervention, levels of these variables decrease over time. Considering that the three studied variables are associated with positive indicators of well-being and mental health, the pertinency of developing interventions specifically designed to promote affiliative

relationships and positive body image in adolescence seems to have been additionally supported. Finally, the Study III **confirmed the mediating effect of social safeness and pleasure in the association between early positive emotional memories and body appreciation**. This result means that aside from memories of early positive relationships, current feelings of social safeness and pleasure add to the explanation of body appreciation in female adolescents. This finding gives further support on the **importance of the cultivation of affiliative skills**, and of a sense of security and acceptance in interpersonal relationships as a target for programmes for the cultivation of body appreciation in female adolescents.

Aligned with the general objective of this Thesis, a second specific objective was outlined: to explore the association of body appreciation with disordered eating and with perceived quality of life. In this line, four additional cross-sectional studies were conducted. The first two aimed at exploring the **association between body appreciation and disordered eating**. One of them was conducted in a sample of emergent adult women and the other in a sample of female adolescents. The other two aimed at studying the **link between body appreciation and several dimensions of perceived quality of life**. The first one used a sample of adolescent boys and girls, and the other was a cross-national study that used a sample of Portuguese and Italian adults. This last study was also the validation for the Portuguese adult population of the Functionality Appreciation Scale (Alleva et al., 2017). Although these relationships have already been studied, there are still some gaps regarding the study of positive body image, namely on its predictors and consequences, in the Portuguese population. This thesis comprises four empirical studies on this specific topic, that can be consulted in “**Part IV – Empirical Studies**”:

- IV. Marta-Simões, J., & Ferreira, C. (2020). Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging

- adult women. *Eating and weight disorders: EWD*, 25(2), 399–406.
<https://doi.org/10.1007/s40519-018-0612-0>
- V. Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2021). Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating. *Eating and weight disorders: EWD*, 10.1007/s40519-021-01274-6. Advance online publication. <https://doi.org/10.1007/s40519-021-01274-6>
- VI. Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2022). Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents' well-being. *Journal of health psychology*, 27(2), 445–455.
<https://doi.org/10.1177/1359105320953463>
- VII. Marta-Simões, J., Verbena, L., Oliveira, S., Tylka, T. L., & Ferreira, C. (2022). *Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life* [Manuscript submitted for publication]. CINEICC, University of Coimbra.

The Study IV – “Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women” was conducted in a sample of emergent adult women and aimed at testing the impact of early memories of warmth and safeness with peers, self-compassion, and social safeness, in body appreciation and in disordered eating attitudes and behaviours. Specifically, a path model explored the mediating roles of self-compassion and of social safeness in the relationship between early positive memories with peers and body appreciation, and if these variables were associated with disordered eating symptoms. Results pointed that early memories of warmth and safeness with peers associated with higher self-compassion and feelings of social safeness, which were both positively linked to body

appreciation. Body appreciation associated with a lower display of disordered eating. Data from this study further supported the **importance of affiliative social experiences and self-compassion to women's body appreciative attitudes**. Moreover, the **negative association between body appreciation and disordered eating symptoms** was further reinforced.

The Study V – “Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating” hypothesized that competences for self-compassion and receiving others' compassion associate positively with social safeness, and the three variables with body appreciation. Once again, the association of body appreciation with disordered eating symptoms was explored, but in this case in a sample of Portuguese female adolescents. The analysis of a path model allowed to understand that self-compassion and receiving compassion from others associate positively with feelings of social safeness. In turn, social safeness associated positively with body appreciation. All variables associated indirectly and negatively with disordered eating, and body appreciation presented a direct and negative association with disordered eating. The Study V added to the previously mentioned ones by exploring the specific contribution of receiving compassion from others to body appreciation. This finding is in line with literature that highlighted the importance of perceiving others' unconditional acceptance to one's positive body image. It also underlined the negative association between body appreciation and symptoms of eating disorders in female adolescents. This finding thus suggested the **pertinence of developing programmes for female adolescents that include the cultivation of compassionate and affiliative skills to promote positive body image and to prevent or intervene with disordered eating symptoms**.

The Study VI – “Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents' well-being” explored the roles of early affiliative memories, social safeness, and body appreciation in three dimensions of adolescents' perceived well-being: psychological, physical, and associated with school environment. Results showed that social safeness and body appreciation mediated the relationship between early affiliative memories and

the explored dimensions of well-being. The study VI provided important data on the importance of affiliative relationships, whether considered as recollections of early positive interactions or as current feelings of social safeness and pleasure, and of body appreciation to adolescents' perception of well-being. These data thus suggest that **interventions aiming at promoting affiliative relationships and body appreciation in adolescence may have important positive consequences on their well-being and quality of life.**

The Study VII – “Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life” had two main aims. The first was to validate the Functionality Appreciation Scale (FAS) for the Portuguese adult population, and the second aim was to explore the association of self-compassion, body functionality, body appreciation and three dimensions of perceived quality of life. The three dimensions of quality of life that were analyzed in Study VII were physical psychological and social relations' quality of life. The analysis of the model showed the mediating role of body appreciation in the association of self-compassion and body functionality with quality of life. Once again, the Study VII highlighted the association of an emotion regulation mechanism - self-compassion – and body appreciation. Also, it supported the idea that an attitude of appreciation regarding the functionality of one's body contributes for the construction of a positive body image. Finally, this study supported the idea that **self-compassion and positive body image aspects associate with the perception of a greater quality of life.** To note, the Study VII additionally served a secondary objective of this investigation, that was to validate a measure of positive body image for the Portuguese population. The study VII also comprised the validation of the Functionality Appreciation Scale (Alleva et al., 2017) for the Portuguese adult population.

Finally, the last specific objective of the present Thesis was to **test the efficacy of the #KindGirlsInACTion, a structured programme designed to empower female adolescents to embrace a more positive attitude towards one’s self and body image.** The test of efficacy of this intervention program is presented in “**Part IV – Empirical studies**”:

- VIII. Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2022). *Promoting adaptive psychological processes, social safeness, and body appreciation in female adolescents: Results from the #KindGirlsInACTion Programme controlled trial* [Manuscript submitted for publication]. CINEICC, University of Coimbra.

The Study VIII – “*Promoting adaptive psychological processes, social safeness, and body appreciation in female adolescents: Results from the #KindGirlsInACTion Programme controlled trial*” tested the efficacy of the #KindGirlsInACTion school-based programme for female adolescents at a group level, using ANOVAs, and at an individual level, using Reliable Change Indexes (RCIs). To conduct this study, two groups were compared: an intervention group that attended the 9-weeks #KindGirlsInACTion programme, and a wait list control group. Both groups were assessed at pre-intervention (M0), post-intervention (M1) and at a three-months follow up assessment (M2). Significant time x condition effects were found for self-compassion, social safeness, and body appreciation. Specifically, ANOVAs’ results showed that while the intervention group showed a significant increase in these variables along the programme, and also between the end of the programme and the follow-up assessment; without an intervention, the control group suffered a decrease in the levels of these variables over time. RCIs showed pointed that the intervention group showed a high percentage of reliable improvement in the studied variables from M0 to M1, and between M1 and M2, while the control group showed a high percentage of reliable deterioration, with moderate effect sizes. The final empirical study

presented in this Thesis offered evidence for the efficacy of the #KindGirlsInACTion programme, suggesting that **interventions that target the promotion of psychological flexibility, and of self-compassion abilities and the establishment of caring, understanding and trusting relationships in one's close social context may have an effect in the promotion of positive body image in adolescent girls.**

Part III

METHOD

1. RESEARCH DESIGN
2. SAMPLING PROCEDURES AND DATA COLLECTION
3. PARTICIPANTS
4. VARIABLES AND INSTRUMENTS
5. INTERVENTIONS
6. ANALYTIC STRATEGY
7. ETHICAL COMPLIANCE

Method

1. Research design

In all the empirical studies presented in this Thesis, descriptive and correlational research designs were employed.

Studies from I to VII are observational studies, as no efforts to directly manipulate or influence the variables in study were made. Study VIII is an experimental study, as the impact of an intervention compared to a control group was analyzed.

Most of the studies presented in this Thesis were cross-sectional, given that participants were observed only once. Studies III and VIII are longitudinal, as changes in variables were investigated over time.

2. Sampling procedures and data collection

In terms of sampling, different populations and samples were sought to explore. Although all studies used non-probability samples, different sampling methods were applied (Table 1).

Dependent, independent, and mediating variables were collected from participants, who also reported sociodemographic data, through self-report questionnaires (whether using online or pen-and-paper surveys) (Table 3).

Taking into account that this Thesis comprises several studies with distinct sampling and data collection procedures, the following section will be divided into characterizing the studies using adult samples, and the studies using adolescent samples.

Table 1. Sampling and data collection methods.

	Population	Sample	Sampling method	Data collection
Study I	Female adults from the general Portuguese Population	Female adults aged from 18 to 50 ($N = 288$)	Snowball sampling	Online survey
Study II	Female adults from the general Portuguese Population	Female adults aged from 18 to 50 ($N = 286$)	Snowball sampling	Online survey
Study III	Female adolescents from the general Portuguese Population	Female adolescents aged from 12 to 18 ($N = 236$), recruited in schools in the centre region of Portugal	Convenience sampling	Pen-and-paper survey
Study IV	Female adults from the general Portuguese Population	Female adults aged from 18 to 25 ($N = 387$), recruited in education institutions, private companies, and retail services in the centre region of Portugal	Convenience sampling	Pen-and-paper survey
Study V	Female adolescents from the general Portuguese Population	Female adults aged from 12 to 18 ($N = 205$), recruited in schools in the centre region of Portugal	Convenience sampling	Pen-and-paper survey
Study VI	Adolescents from the general Portuguese Population	Adolescents aged from 12 to 18 ($N = 362$), recruited in schools in the centre region of Portugal	Convenience sampling	Pen-and-paper survey
Study VII	Adults from the general Italian and Portuguese Populations	Italian and Portuguese adults aged from 18 to 65 ($N = 385$)	Snowball sampling	Online survey

Study VIII	Female adolescents from the general Portuguese Population	Female adolescents aged from 12 to 18 ($N = 113$), recruited in schools in the centre region of Portugal	Convenience sampling	Online survey
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2.1. Studies using adult samples

Studies I, II and VII used samples of adults, recruited online, using the non-probability exponential non-discriminative snowball method. To conduct these studies, the principal investigator sent invitations via email and through a social media while using the Exponential Non-Discriminative Snowball Sampling method. Specifically, each recruited subject was invited to provide multiple referrals for the study; each new referral would then provide with more data for referral and so on, until the desired sample size was achieved. Invitations to participate clarified the aims of the study, procedure, as well as criteria for inclusion and exclusion of participants. Invitations also included an Internet link redirecting potential participants to an online version of the self-report questionnaires. The online survey started with an informed consent form that should be signed prior to any data collection procedure. Participants did not receive any incentive or compensation for their participation. To note that although Studies I and II intended to study exclusively female adults, online invitations were sent to both males and females to ease the employment of the Snowball Sampling method.

The Study IV used a convenience sample of adults that were recruited in higher education institutions, private companies, and retail services. Data collection was face-to-face, using pen-and-paper self-report questionnaires. To conduct this study, the principal investigator contacted institutions, companies, and services whose members and employees corresponded to the characteristics of the intended sample. Subjects were invited to volunteer as participants, and were familiarized with the nature and rationale of the study. Then, women who agreed to participate provided their written informed consent and were given a set of self-report

questionnaires to be responded to during a break (authorized by the institution's boards) of approximately fifteen minutes. Participants did not receive any incentive or compensation for their participation.

2.2. Studies using adolescent samples

The remain studies were conducted on samples of adolescents. However, there were two different sample recruitment actions, one for the transversal and longitudinal studies (Studies III, V, VI), and the other for the experimental study (Study VIII).

Since Studies III, V and VI aimed at studying adolescents aged between 12 and 18, five different middle education and secondary schools were contacted and invited to participate. The schools were in the district of Coimbra, in the centre region of Portugal. The participation in the study consisted of filling in a set of self-report questionnaires and a sociodemographic questionnaire in the classroom, using time made available by the teacher in charge. Although the present investigation intended to study solely female adolescents, the schools agreed to participate only on the condition of data collection on both female and male adolescents, so that the entire class would be occupied in the time that would be dedicated to the study. In this line, classes that showed interest in participating in the study were given an initial session to clarify the objectives of the study, and an informed consent document was delivered to be signed by the legal guardians of the students. After returning the signed document, a specific class was designated for completing self-response questionnaires. Data were collected in the same sample of adolescents during a period of twelve months, each separated by a period of six months. During all moments of data collection, two members of the research centre were present to clarify the goals of the study and any doubts that could arise. Self-report instruments were presented in their Portuguese validated versions, and the set of questionnaires used a counterbalanced order across participants. Participants did not receive any incentive or compensation for their

participation. Since Studies III and V were cross-sectional, only the first wave of data was analyzed. Also, since Studies III and VI aimed at specifically studying female adolescents, male adolescents were deleted from the sample and not subjected to any analysis.

Finally, Study VIII aimed at implementing and testing the efficacy of an intervention with female adolescents. Since this was a school-based intervention, several schools in the centre region of Portugal were contacted and fully debriefed about the study. Specifically, principals and teachers were informed that the study would comprise two different groups: an intervention group that would participate in a nine-week school-based psychotherapeutic programme, and would be assessed at three different moments, and a control group that would not receive the intervention and would be assessed at the same moments as the intervention group. In each school there was only the option of integrating the study as a treatment or control group, so that there was no crossing of information between the two groups. Thus, in schools that accepted that their students would form the intervention group, an initial session of presentation of the intervention programme was conducted. In this session, students were fully informed of the objectives of the study and given an informed consent form to be signed by their legal guardian. After returning the signed informed consent, the participants provided their email contact, which served as a communication channel for the participants to receive an online survey composed of a sociodemographic questionnaire and self-report measures. This survey was sent to participants in the intervention group at three different times: pre-intervention (M0), post-intervention (M1; nine weeks after the M0), and at a follow-up assessment (M2; three months after M1). Regarding the adolescents allocated to the control group, they also received an initial clarification session regarding the objectives of the study. In this session, they received an informed consent form to be signed by their legal guardians and returned in case they wished to participate in the control group. When returning this document, the adolescents also provided the research team with an email contact, to which the same online survey as the intervention group would be sent, at the same different moments as the intervention group. If participants in the control group completed

the three assessments, they would be eligible to draw one of five shopping vouchers, to acquire goods related to learning and culture. Also, this was a wait list control group, so participants were offered the opportunity to attend the intervention after the end of the studies.

3. Participants

Table 2 presents the numbers for the recruitment of participants for the empirical studies. These numbers refer to the samples obtained prior to the selection of responses. The selection took into account the different criteria for inclusion and exclusion of each empirical study, and the existence of missing data in the responses to the evaluation protocols.

Table 2. Participants' recruitment overview.

	Population	Recruited <i>N</i>	Study <i>N</i>
Adult samples	Adults assessed online	407	288 (Study I) 286 (Study II)
	Adult women assessed face-to-face	738	387 (Study IV)
	Italian and Portuguese adults assessed online	385	385 (Study VII)
Adolescent samples	Female and Male adolescents assessed face-to-face / cross-sectional studies	426	205 (Study V) 362 (Study VI)
	Female and Male adolescents assessed face-to-face / longitudinal study	587	236 (Study III)
	Female adolescents / experimental study	367	113 (Study VIII)
			<i>n</i> (intervention group) = 52 <i>n</i> (control group) = 61

4. Variables and instruments

In order to fulfill the objectives established for this research project and evaluate the variables of interest for both adults and adolescents, different assessment protocols were created

Psychological inflexibility	Acceptance and Fusion Questionnaire (AFQ-Y; Greco et al., 2008; Portuguese version by Cunha & Santos, 2011)									
Compassion competences	Compassionate Engagement and Action Scales (CEAS; Gilbert et al., 2017; Portuguese version by Cunha et al., 2021)									
Positive feelings in close social contexts	Social Safeness and Pleasure Scale (SSPS-A; Gilbert et al., 2009; Portuguese version by Miguel et al., 2022)									
Body appreciation	Body Appreciation Scale (BAS-2; Tylka & Wood-Barcalow, 2015b; Portuguese version by Lemoine et al., 2018)									
Disordered eating symptoms	Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994; Portuguese version by Machado et al., 2014)									
Perceived quality-of-life	The KIDSCREEN-27 Quality of Life Measure (KIDSCREEN-27; Ravens-Sieberer et al., 2007; Portuguese version by Gaspar & Matos, 2008)									

5. Interventions

As part of the experimental study (Study VIII) presented in this Thesis, the intervention **#KindGirlsInAction** was delivered to a sample of Portuguese adolescent girls. More detailed information about the process of development and the structure and contents of the **#KindGirlsInAction** programme can be consulted in **Appendix A – The #KindGirlsInAction programme**. Information on the process of delivery of the intervention can be found in **Part IV – Empirical Studies – Study VIII**.

In terms of its theoretical background, this intervention aims at cultivating adolescent girls' adaptive psychological processes associated with the Acceptance and Commitment Therapy (Hayes et al., 1999), the emotion regulation mechanisms associated with compassion that are based in the Compassion Focused Therapy (Gilbert, 2009), and develop mindfulness (Kabat-Zinn, 1982). Although the intervention was tested in the present investigation regarding its efficacy in improving adolescent girls' body appreciation, this intervention does not directly cover the body image thematic. The #KindGirlsInACTion also aims at improving the quality of girls' interpersonal relationships, that is to establish and maintain affiliative and caring relationships, in which the adolescent feels accepted and protected.

The #KinGirlsInACTion is a school-based program, completely adapted in terms of language and design to the developmental stage of adolescence. Also, it is mostly interactive, comprising only a few short psychoeducational moments. Sessions mostly comprise mindfulness practices, group dynamics, experiential exercises, and moments of sharing of personal experiences.

The structure of the program is of nine weekly sessions of forty-five minutes each. Between each session, participants are invited to complete tasks that cover the themes of the previous session, and practice mindfulness using an audio file provided by the research team. This is a manualized session, comprising a manual for the facilitator and a manual for the participant. The manual for the participant includes synthesis of the themes covered by each session, and tasks to complete.

6. Analytic strategy

This section presents an overall view of the main statistical options used in data processing. Nonetheless, the analytic strategy is presented in more detail for each empirical study in Part IV of this Thesis.

The Studies I, II, IV, VI and VII used descriptive analysis, correlational analysis, and structural equation modelling. The Study VII also presented the validation of a self-report scale for the Portuguese population and thus a Confirmatory Factor Analysis was conducted.

Study III, aside from descriptive and correlational analysis, used Repeated Measures ANOVAs and a Crossed-lagged Panel Model.

Study VIII, aside from descriptive and correlational analysis, used mixed ANOVAs and Reliable Change Indexes.

In general, **descriptive analysis** were used in the empirical studies presented to allow a detailed description of the samples used, as well as the variables under study. **Correlational analysis** allowed, in each study, to better understand the relationships between the variables, more specifically their direction and magnitude of association. Effectively, the exploration of correlations allowed a better understanding of the associations between mechanisms of emotion regulation, psychological processes, recollection of emotional memories, attitudes, perceptions, and symptoms. **Structural Equation Modelling** was conducted to explore the adequacy of several proposed mediational models. Specifically, by allowing a clearer understanding of how and why our independent variables influenced our outcome variables, the use of this type of statistical analysis allowed us to extract important clues from cross-sectional studies about the mechanisms and processes to be developed *a posteriori*, in the experimental study. **Repeated Measures ANOVAs** were conducted in the longitudinal study (Study III). This approach allowed the exploration of changes in mean scores over three assessment moments, i.e., how the variables under study behaved, in female adolescents, over twelve months without any type of psychotherapeutic intervention. Also, through Structural Equation Modeling, a **Crossed-Lagged Panel Model** was analyzed in this empirical study. This is a commonly used analysis when dealing with longitudinal data, since it allows for sounder inference about the direction of associations and is considered a method that provides reduced parameter bias. It works by assessing each variable at multiple times and analyzing whether the levels of variables at initial assessment

moments impact on values at later assessment moments. **Mixed ANOVAs** were conducted in the experimental study given their adequacy in the comparison of the mean differences between groups considering two factors: a "within-subjects" factor and "between-subjects". In the specific case of this research project, the "within subjects" factor was time, i.e., the three assessment moments, and the "between subjects" factor was participants' allocation to the intervention or the control group. The primary purpose of using this analysis was to understand if there was an interaction between the two factors on the dependent variables in study. Finally, to measure intra-subject clinical individual change in the experimental study, the **Reliable Change Index** was computed. Reliable Change Index scores allow to understand the number of participants that presented reliable improvement, reliable deterioration, or indeterminate change after an intervention, and to compare intervention and control groups based on the distribution by clinical change categories.

7. Ethical compliance

Throughout all the phases of this research project, from its conceptualization to the moment of dissemination of the scientific findings, the ethical and deontological recommendations of entities such as the American Psychological Association (2017), the World Medical Association (WMA, 2013), and the Portuguese Psychological Association ("Ordem dos Psicólogos Portugueses", OPP) (2016) were strictly considered and followed.

The four fundamental principles of ethics (i.e., autonomy, non-maleficence, beneficence, and justice) were pursued during all phases of the investigation. At the time of conceptualizing the research project, the relevance of the aims of the studies, the consistency of the methodological options, and all the potential risks for the participants of this study were carefully analyzed. Also, the procedures to be carried out were identified to guarantee the anonymity of the participants, the voluntary nature of their participation, their possibility of

withdrawal from the study without any consequences, and measures to protect participants in the event that any consequences for their well-being were reflected on, identified, and delineated. With all these considerations assembled, formal requests for authorization to proceed with the research project were made to entities that additionally ensured ethical compliance issues, namely the Portuguese Ministry of Education (registration number 0596700001) and the National Commission for Data Protection (authorization number 109/2017). The research project was also submitted to the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra. When all permissions were gathered, the Ph.D. Student and the research team started contacting the institutions, companies, and services to which the potential participants belonged to, to present the research project as well as to provide detailed information regarding the objectives, procedures, voluntary nature of participation, guarantee of anonymity of participants and the use of the collected data strictly for investigational purposes. It was also explained that the present research project did not present a risk of malignant consequences or harm to the participants, but that psychological help would be made available in case any participant felt minimally affected by any procedure. All potential participants were given a document containing this information, as well as an informed consent form, to be signed by the participant or by the legal guardian in the case of participants under 18 years of age.

To guarantee the confidentiality and anonymity of participants, the following procedures were adopted. Firstly, informed consent documents as well as personal contact information of participants and, in some cases, of their legal guardians, were stored in a specific location, separate from the completed paper-and-pen evaluation protocols, so that no one outside the research team would have access to them. The assessment protocols were identified by a non-decodable code, and only strictly necessary personal data was collected for the study. The data were analyzed collectively and inserted in a common database (i.e., were not analyzed

individually). Finally, in case of the longitudinal studies, respondent-specific codes to link the data from one time-point to the next one were used.

Regarding the implementation of the intervention programme, the same guarantees (anonymity, confidentiality, possibility of withdrawing, etc.) were given to the participants. Furthermore, the possibility of receiving the intervention after the end of the investigation was offered to the participants of the control group. However, considering that at that time the country was under a lockdown measure due to COVID-19 pandemic, this measure could not be implemented.

Regarding the dissemination of scientific results, these were disseminated among the scientific community through the publication of papers in international scientific peer reviewed journals, and the presentation of oral and poster communications at national and international scientific meetings.

EMPIRICAL STUDIES

1. THE ROLE OF ADAPTIVE PSYCHOLOGICAL PROCESSES AND EMOTIONAL
REGULATION MECHANISMS IN THE DEFINITION OF BODY APPRECIATION

Empirical studies I, II and III

2. THE LINK BETWEEN BODY APPRECIATION AND INDICATORS OF DISORDERED
EATING AND PERCEIVED QUALITY OF LIFE

Empirical studies IV, V, VI and VII

3. THE TEST OF EFFICACY OF THE #KindGirlsInAction PROGRAMME

Empirical study VIII

1.The role of adaptive psychological processes and
emotional regulation mechanisms in the definition of
body appreciation

Empirical studies I, II, and III

S T U D Y I

Turning self-compassionate engagement into action

Impact on body appreciation among Portuguese women

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Turning self-compassionate engagement into action: Impact on body appreciation among Portuguese women

Joana Marta-Simões^a, and Cláudia Ferreira^a

^aCINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

Abstract

Body appreciation, a facet of positive body image with important implications for women's wellbeing and mental health, has been reported to associate with important emotion regulation mechanisms such as self-compassion and psychological flexibility.

Using a sample of adult women from the Portuguese general population ($N = 288$), the present study aimed to explore how self-compassionate engagement and action competences may differentially impact on body appreciation, and whether psychological flexibility mediates self-compassionate engagement's relationship with self-compassionate action.

Path analysis' results showed that while self-compassionate action directly associates with body appreciation, the effect of self-compassionate engagement on self-compassionate action and body appreciation appears to be mediated by psychological flexibility.

It thus seems that psychological flexibility may be involved in the positive association between self-compassionate sensitivity and motivation and effective self-compassionate action, which altogether associate with higher body appreciation. The combination of strategies of Compassion Focused Therapy (CFT) and Acceptance and Commitment Therapy (ACT) may potentiate the promotion of positive body image in adult women.

Highlights

- body appreciation is known to have important implications for the promotion of health;
- self-compassionate engagement and action associate with body appreciation;
- psychological flexibility (AAQ-II) associates with body appreciation;
- AAQ-II mediates the association between self-compassion competences.

Keywords: Body appreciation, Self-compassionate engagement, Self-compassionate action, Psychological flexibility, Positive psychology

Introduction

Body image has long become a psychologically relevant construct (Cash & Pruzinsky, 1990; Schilder, 1935), with influence on the way individuals feel, think, perceive, and act toward their body (e.g., Cash, 2012). Historically, the importance of body image Human's sense of wellbeing and mental health has been mostly covered by studies on the impact of negative body image (mostly operationalized as body image dissatisfaction). Several accounts have stressed the relationship of body image dissatisfaction with poorer quality of life (in the Portuguese general population (Duarte, Ferreira, Trindade, & Pinto-Gouveia, 2015), and other populations (Liimakka, 2014; Mond et al., 2013)) as well as with several psychopathology indicators, namely eating disorders symptomatology (in the Portuguese general population (Ferreira, Pinto-Gouveia, & Duarte, 2013), and other populations (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Stice & Shaw, 1994; Thompson, Heinberg, & Tantleff-dunn, 1999)).

The female gender is considered to be the most affected one by appearance pressures and by the experience of body image dissatisfaction, which is likely a consequence of the female “thin-ideal” perpetuated by the Western society (Cooper & Fairburn, 1983). This ideal of the female body image as thin, tall and young is considered to be an unrealistic and almost

unattainable standard for the majority of women and thus, to be pursued, may require extreme body weight and shape control behaviours which are known to take part in the genesis of eating disorders (e.g., Attie & Brooks-Gunn, 1989; Johnson, Tobin, & Steinberg, 1989).

It is now considered to be fundamental for the future of body image research a shift from a focus on pathology to an investment in positive, adaptive and healthy body image (Halliwell, 2015, Smolak and Cash, 2011). While the almost secular tradition of focusing on alleviating symptoms of negative body image has been crucial to the treatment of body image-related disturbances, investing in positive body image seems to complement the literature by moving beyond lowering body dissatisfaction toward appreciation, respect, celebration and honor of the Human body, which not only allows a more comprehensive understanding of body image (Smolak & Cash, 2011), but also a more effective prevention and lasting treatment of disturbances (Tylka & Wood-Barcalow, 2015a).

One of the most studied constructs representing positive body image is body appreciation (Avalos et al., 2005, Halliwell, 2015, Tylka and Wood-Barcalow, 2015bb). Body appreciation defines as an attitude of acceptance, love, care, and pride toward one's body's features, functionality and health, regardless of the attunement between one's appearance and the culturally idealized standard of beauty (Avalos et al., 2005). This adaptive mindset has been found to associate positively with several well-being and mental health indices, namely self-compassion and positive affect (Berry et al., 2010, Homan and Tylka, 2015), and negatively with negative affect, and several markers of body image-related disturbances (e.g., thin-ideal internalization and disordered eating) (Lunde, 2013, Tylka and Wood-Barcalow, 2015bb). these associations were also found in samples from the Portuguese general population (Marta-Simões et al., 2016, Marta-Simões et al., 2016).

One variable highlighted as protective in the domain of body image is self-compassion (e.g., Braun, Park, & Gorin, 2016; Ferreira et al., 2013). Self-compassion can be defined as a way to regulate personal threat and negative affect by treating oneself with kindness, understanding,

and with a sense of shared humanity (i.e., by realizing that pain and suffering are a common and shared Human experience, Neff, 2003). Another important and complementary definition of self-compassion underlines the importance of being mindfully aware and sensitive to one's suffering and of being committed to try to alleviate and prevent it (e.g., Gilbert & Choden, 2014).

Recently, Gilbert et al. (2017) built a new set of scales which assess compassion (self-compassion, compassion for others, and compassion from others). Each one of the scales is divided into two subscales which assess two depending and interacting sets of competencies. These are socially intelligent competencies needed for both engagement and taking action to address and prevent suffering in self and others, i.e., competencies which allow turning care into compassion (e.g., Gilbert, 2005). These competencies can be divided into two dependent and interacting sets: (i) engagement competencies and (ii) action competencies. Regarding the self-compassion scale, its self-compassionate engagement subscale allows the assessment of individuals' motivation to engage with one's own suffering, that is the ability to be sensitive toward, emotionally moved (sympathy) by, tolerance toward, reflect (cognitive empathy and perspective taking) about, and be accepting and non-judgmental about one's own pain or defeat. Secondly, its self-compassionate action subscale allows the assessment of the ability to intentionally direct and pay attention to one's own suffering, thinking and reasoning about what is likely to be helpful, taking useful actions and creating inner feelings of support, kindness, helpfulness and encouragement to deal with one's own distress. In other words, the use of this new set of self-compassion subscales allows to distinguish compassion as simply being able to engage with, tolerate and understand distress/ suffering (compassion engagement), from the ability of developing the wisdom and commitment to do something about it (compassionate action). This fresh and promising conceptualization is, however, in an early stage of exploration. Nonetheless, a recent study suggested that self-compassionate engagement may prompt the decrease of cognitive fusion regarding negative body image thoughts and the increase of effective actions toward one's own suffering (Duarte, Pinto-Gouveia & Stubbs, 2017). Another study

(Máximo, Ferreira, & Marta-Simões, 2017), conducted in the Portuguese general population, revealed a probable positive association of self-compassionate engagement and action with body appreciation, and a negative one with the display of disordered eating symptoms. In this study, the self-compassionate action subscale presented associations of higher magnitude with body appreciation and disordered eating comparing to the self-compassionate engagement subscale. One of the recent models explaining positive body image is inserted in an emotion regulation framework and considers that positive body image is explained by both body appreciation and body image-related psychological flexibility (Webb, Butler-Ajibade, & Robinson, 2014). Psychological flexibility is the key construct of the Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), which is based in the knowledge that it is not the content of beliefs that is the foundation of Human suffering, but indeed the strict and inflexible way one deals with such beliefs (Hayes, 2004; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Psychological flexibility overall defines as the ability to fully and wittingly experience the present moment, even when it implies difficult thoughts, feelings, memories or bodily sensations, without unnecessary defense or avoidance, and to change to or persist in behaviour that is consistent with one's chosen values (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Regarding body image, Webb et al. (2014) consider that psychological flexibility allows individuals to act kindly and respectfully toward their bodies, and thus to pursue valued action, when they are faced with body image-related threats that elicit body image dissatisfaction and negative affect.

One of the main threats to psychological flexibility is experiential avoidance (e.g., Hayes et al., 2006), known for its marked negative impact on behavioural flexibility and efficiency (Hayes, Levin, Plumb-Villardaga, Villatte, & Pistorello, 2013). Experiential avoidance involves the attempt to avoid/escape from, or control the form, frequency or intensity of undesired internal experiences, even when doing so may cause psychological harm (Hayes et al., 2006), which paradoxically leads to an increase of its frequency and strength (e.g., Gold & Wegner, 1995). In fact, systematically referred as a non-adaptive emotion and behaviour regulation mechanism,

experiential avoidance is known to contribute to a broad range of mental and behavioural health problems (Hayes et al., 2006), namely body image and eating-related disturbances (Barnes and Tantleff-Dunn, 2010, Blakey et al., 2017, Ferreira et al., 2011, Merwin et al., 2010).

Based on the knowledge that few studies have identified compassion and psychological flexibility as relevant mechanisms related to positive body image, the aim of the present study is, firstly, to further explore the body appreciation phenomenon among Portuguese women, and how self-compassionate engagement and action may differentially impact on body appreciation. Due to the significant behavioural and “action-taking” character of body appreciation, it is hypothesized that the impact of self-compassionate action on body appreciation may be of higher magnitude comparing to the effect of self-compassionate engagement. If so, the present study will add to literature by distinguishing the effects of motivations and specific actions on body appreciation. Furthermore, a specific aim of the present work is to test whether psychological flexibility takes part in the relationship of self-compassionate engagement with self-compassionate action. Overall, it is predicted that self-compassionate engagement associates with self-compassionate action via lower psychological inflexibility, and that the three emotion regulation mechanisms associate with higher body appreciation.

Method

Participants

Participants were 288 women, from the general Portuguese population. Age ranged between 18 and 50 ($M = 30.44$; $SD = 9.72$), and years of schooling between 4 and 23 ($M = 13.76$; $SD = 3.25$). Body mass index values (BMI) in this sample were in accordance with those found in the Portuguese general population (Póinhos et al., 2009), with a minimum of 16.26 and a maximum of 43.03 ($M = 23.93$; $SD = 4.67$). The majority of participants presented normal BMI (63.2%, $n = 182$), 4.9% ($n = 14$) were underweight, 31.9% ($n = 92$) were overweight (WHO, 2000).

Procedure

The present study is included in an ongoing investigation about the relationship between several psychological processes and positive body image indicators in Portuguese women and female adolescents (named “#KindGirlsInACTion”). Prior to any procedure, the study was approved by an Ethics Commission, and all data collection and study's procedures respected all ethical and deontological requirements inherent to scientific research. Participants were recruited online, i.e., by email invitations and through a social media (Facebook) while using the Exponential Non-Discriminative Snowball Sampling method (Heckathorn, 2011). Email and Facebook invitations to participate clarified the aims of the study, procedure, as well as criteria for inclusion of participants (women aged between 18 and 55 years old). An Internet link in invitations redirected potential participants to an online version of the questionnaires (using LimeSurvey, an on-line statistical survey web app), which requested participants who accepted to take part in the study to provide their written informed consent before completing any assessment questionnaire. Since the online questionnaire protocol was intentionally designed to only allow subjects who met criteria for inclusion to participate in the study, and the used survey app does not allow blank responses, all subjects who completed the questionnaires were included in the study, resulting in a sample of 288 women.

Measures

The following self-report measures were administered to participants in its Portuguese-language versions:

Body Mass Index (BMI). An initial demographic data questionnaire asked participants to report their current weight and height values. Body mass index values were calculated by dividing current weight, in Kilograms, by height squared, in Meters (Quetelet Index; kg/m^2).

Compassionate Engagement and Action Scales (CEAS; Gilbert et al., 2017). CEAS are three measures of compassion competences which access (1) compassion experienced for others, (2) the compassion experienced from others, and (3) self-compassion. Each one of the three scales divides into two subsections: a set of 8 items which evaluate motivation and competencies to engage with suffering and attentional sensitivity to signals of suffering (i.e., “engagement”), and 5 items which assess motivation to act wisely, that is to acquire the necessary wisdom and skills to actually alleviate or prevent suffering (i.e., “action”). Respondents are asked to think about distressing situations and rate how each sentence applies to them, using a scale which ranges from 1 (“Never”) to 10 (“Always”). In the present study, only the self-compassion scale was used, while treating its subsections individually, i.e., self-compassionate engagement (SC_Engagement; e.g., “I am motivated to engage and work with my distress when it arises”) and self-compassionate action (SC_Action; e.g., “I take the actions and do the things that will be helpful to me”). The original study of the CEAS revealed that all three scales have good validity and, specifically, the self-compassionate engagement and action scale revealed to be robust (Cronbach's alpha values of 0.74 and 0.89 for the subsections SC_Engagement and SC_Action, respectively).

Acceptance and Action Questionnaire – II (AAQ-II; Bond et al., 2011; Portuguese version by Pinto-Gouveia, Gregório, Dinis, & Xavier, 2012). This 7-item self-report questionnaire assesses experiential avoidance and psychological inflexibility (e.g., “I worry about not being able to control my worries and feelings”, “My painful memories prevent me from having a fulfilling life”). Respondents are asked to rate the truth of each statement using a 7-point scale which ranges between 1 (“Never true”) and 7 (“Always true”). The AAQ-II has showed to be a psychometrically sound measure, specifically the original study (Bond et al., 2011) reported a Cronbach's alpha value of 0.88, and the Portuguese validation study (Pinto-Gouveia et al., 2012) of 0.90.

Body Appreciation Scale – 2 (BAS-2; Tylka & Wood-Barcalow, 2015b; Portuguese version by Marta-Simões et al., 2016). This self-report scale evaluates an aspect of positive body image

denominated body appreciation. Body appreciation defines as the detention of a set of attitudes of respect, care, acceptance and protection of one's unique body features, regardless of the assumption of a certain and normative level of body image dissatisfaction. The BAS-2 comprises 10 items (e.g., “I am comfortable in my body”, “I appreciate the different and unique characteristics of my body”), and respondents are requested to designate whether each statement is true about them, using a 5-point scale ranging from 1 (“Never”) to 5 (“Always”). This is a robust measure which has showed Cronbach's alpha values of 0.97 and 0.95, in the original version (Tylka & Wood-Barcalow, 2015b) and the Portuguese validation studies (Marta-Simões et al., 2016), respectively.

The Cronbach's alphas for each study variables for two groups are presented in Table 1.

Table 1. Cronbach's alphas (α), means (M), standard deviations (SD), and intercorrelation scores on self-report measures ($N = 288$).

Measures	α	M	SD	1	2	3	4
1. BMI	-	23.93	4.67	-	-	-	-
2. SC_Engagement	.81	25.26	7.75	-.05	-	-	-
3. AAQ-II	.92	22.22	9.22	.06	-.45***	-	-
4. SC_Action	.93	27.48	8.26	-.03	.71***	-.58***	-
5. BAS-2	.96	3.68	.85	-.30***	.33***	-.43***	.48***

Note. BMI = Body Mass Index; SC_Engagement = Self-compassionate engagement subscale of the Compassionate Engagement and Action Scales; AAQ-II = Acceptance and Action Questionnaire; SC_Action = Self-compassionate action subscale of the Compassionate Engagement and Action Scales; BAS-2 = Body Appreciation Scale - 2.

*** $p < .001$.

Data analyses

Software programs IBM SPSS 22.0 and Amos 22.0 were used to conduct all data analyses.

Sample's characteristics, and its behaviour regarding studied variables, were examined through descriptive statistics (means and standard deviations). Product-moment Pearson correlation analyses were conducted to explore associations between the variables in study (self-compassionate engagement and action, body mass index, psychological inflexibility and body appreciation).

Structural relations (direct and indirect effects) among variables were assumed, and thus were explored through path analysis. Specifically, the adequacy of a theoretical model (which hypothesized that psychological inflexibility and self-compassionate actions act as mediators of the relationship between self-compassionate engagement and body appreciation) was tested, while controlling for the effect of body mass index (Fig. 1). In this line, self-compassionate engagement (SC_Engagement) and body mass index (BMI) were entered as endogenous variables, psychological inflexibility (AAQ) and self-compassionate action (SC_Action) were hypothesized as endogenous mediator variables, and body appreciation (BAS-2) as an exogenous variable. The Maximum Likelihood estimation method, with 95% confidence interval, was used to test the significance of the model's paths. The following model fit indices were considered when examining the adequacy of the model: Chi-Square (χ^2), Normed Chi-Square ($\chi^2/d.f.$), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), and the Root-Mean Square Error of Approximation (RMSEA), with 95% confidence interval.

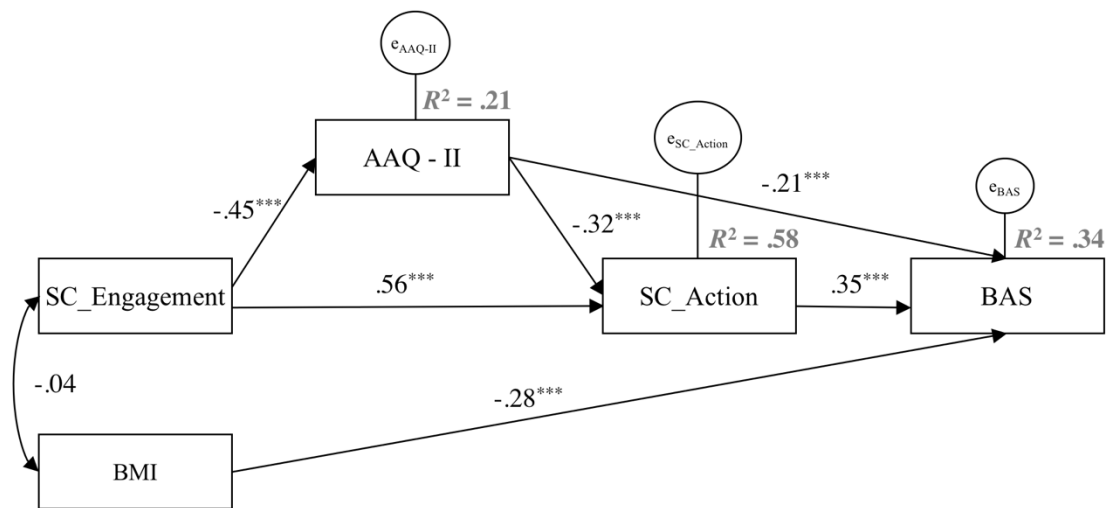


Figure 1. Final path model. Standardized path coefficients amongst variables are presented. *Note.* BMI = Body Mass Index; SC_Engagement = Self-compassionate engagement subscale of the Compassionate Engagement and Action Scales; AAQ-II = Acceptance and Action Questionnaire; SC_Action = Self-compassionate action subscale of the Compassionate Engagement and Action Scales; BAS-2 = Body Appreciation Scale – 2. $***p < .001$.

Results

Descriptive statistics

Means and standard deviations are presented in Table 1.

Correlations

Body mass index was only significantly associated to body appreciation, with a negative and moderate correlation coefficient. Self-compassionate engagement presented a negative and moderate correlation with the measure of experiential avoidance and psychological inflexibility (AAQ-II) and positive associations with self-compassionate action (with strong magnitude) and with body appreciation (with moderate magnitude). The AAQ-II correlated negatively and

strongly with self-compassionate action and with body appreciation. Finally, self-compassionate action and body appreciation presented a positive correlation of moderate magnitude.

3.3. Path analysis

A fully saturated model, consisting of 18 parameters, was initially tested. This model explained 21% of the variance experiential avoidance and psychological inflexibility, 58% of the variance of self-compassionate action, and 34% of the variance of body appreciation. Three of the paths of the saturated model were found not to be significant, and thus were gradually eliminated. The first path to be eliminated was the direct effect of body mass index on self-compassionate action ($b_{\text{BMI}} = 0.03$; $SE_b = 0.07$; $Z=0.46$; $p = .65$), secondly was the direct effect of self-compassionate engagement on body appreciation ($b_{\text{SC_Engagement}} = 0.00$; $SE_b = 0.01$; $Z=-0.58$; $p = .56$), and then the effect of body mass index on experiential avoidance and psychological inflexibility ($b_{\text{BMI}} = 0.08$; $SE_b = 0.10$; $Z=0.73$; $p = .47$). The three paths were removed, and the model was readjusted.

The readjusted model is presented in Fig. 1 and showed to explain 21% of the variance experiential avoidance and psychological inflexibility, 58% of the variance of self-compassionate action, and 34% of the variance of body appreciation. All path coefficients showed to be statistically significant ($p < .05$). Model fit indices were examined and revealed the model's excellent fit to the empirical data [CMIN/ $df = 0.36$; TLI = 1.015; CFI = 1.000; NFI = 0.998; RMSEA = 0.000, $p = .908$, 95% CI = 0.000 to 0.065].

Starting with self-compassionate engagement (SC_Engagement), this variable showed a positive direct effect ($\beta = 0.56$) on experiential avoidance and psychological inflexibility ($b_{\text{SC_Engagement}} = 0.60$; $SE_b = 0.04$; $Z = 13.10$; $p < .001$), and a negative direct effect ($\beta = -0.45$) on self-compassionate action ($b_{\text{SC_Engagement}} = -0.54$; $SE_b = 0.06$; $Z = -8.62$; $p < .001$). Self-compassionate engagement also showed an indirect effect on self-compassionate engagement, via experiential avoidance and psychological inflexibility, of 0.15 (95% CI = 0.880 to 0.213); and on body

appreciation, mediated by both experiential avoidance and psychological inflexibility and self-compassionate action ($\beta=0.34$; 95% CI = 0.257–0.434). Regarding experiential avoidance and psychological inflexibility (AAQ), it showed negative direct effects on self-compassionate engagement ($b_{AAQ} = -0.29$; $SE_b = 0.04$; $Z=-7.48$; $p<.001$; $\beta=-0.32$), and on self-compassionate action ($b_{AAQ} = -0.02$; $SE_b = 0.00$; $Z=-3.62$; $p<.001$; $\beta=-0.21$). The measure of experiential avoidance and psychological inflexibility also showed a negative impact on body appreciation, via self-compassionate action, of -0.11 (95% CI = -0.177 to -0.055). Self-compassionate action was revealed to hold a direct positive effect on body appreciation, of 0.35 ($b_{SC_Action} = 0.04$; $SE_b = 0.01$; $Z=5.90$; $p<.001$). Finally, BMI showed a negative direct effect on body appreciation ($b_{BMI} = -0.05$; $SE_b = 0.01$; $Z=-5.80$; $p<.001$; $\beta=-0.28$).

To further support path analysis' findings, a reverse mediation path analysis was conducted. This analysis revealed that the reverse order does not produce an adequate fit to empirical data (CMIN/*df* = 19.155, $p<.001$; TLI = 0.574, CFI = 0.830, NFI = 0.825; RMSEA = 0.252, 95%CI = 0.204–0.302, $p<.001$), further supporting the adequacy of the tested model (Fig. 1).

All effects were revealed to be highly significant and seem to suggest that self-compassionate engagement may associate with higher self-compassionate action, via a lower tendency to experiential avoidance. Moreover, it seems to be a link between high self-compassionate action and high body appreciation.

Discussion

The field of body image has recently witnessed a shift to an emphasis on factors which explain a healthy (i.e., balanced, protective) relationship with one's bodily appearance, overall designated as body appreciation (Avalos et al., 2005, Smolak and Cash, 2011). This modern direction of body image studies is thought to present advantage for the promotion of health and prevention of body image-related disturbances (Halliwell, 2015).

Although a great amount of studies on positive body image have now allowed the identification of several sociodemographic and ethnic correlates of body appreciation (e.g., Homan & Tylka, 2015; Marta-Simões et al., 2016; Tylka & Wood-Barcalow, 2015a), few studies have focused on exploring the impact of affect regulation strategies on positive body image variables (Webb et al., 2014). In spite of that, these few process-focused studies have identified compassion (Homan and Tylka, 2015, Marta-Simões et al., 2016) and psychological flexibility (Webb et al., 2014) as relevant mechanisms for the understanding of positive body image.

In light of the available information, and in order to further explore the role of affect regulation in positive body image, this study intends to be a pioneer in understanding whether it is self-compassionate engagement or action which contributes to body appreciation. Moreover, the main aim of the present study was to explore the role of general psychological flexibility on the translation of self-compassionate engagement into action, and how these mechanisms may associate with higher body appreciation on adult women.

Preliminary findings on the associations between the studied variables were in accordance with our predictions. Among all significant correlations, it is important to underline the strong association between psychological inflexibility and self-compassion, and that the correlation between psychological inflexibility with self-compassionate action was revealed as stronger than the correlation with self-compassionate engagement. It thus seems that a tendency to alter the form or frequency of undesired and/or painful internal events associates with a lower tendency to promptly develop the wisdom and commitment to act on one's motivation to engage with suffering (self-compassionate action). In fact, when comparing to the association with self-compassionate engagement, our results seem to suggest that psychological flexibility is especially important for the materialization of the sensitivity and efforts to deal with and prevent one's own suffering (self-compassionate action). Regarding body appreciation, psychological flexibility and self-compassionate engagement were, in fact, its most powerful correlates. These results are in accordance with previous findings, such as Webb et al. (2014) notes on the proximity of body

image-related psychological flexibility and body appreciation (these authors argue that flexibility may provide a practical context for facing perceived flaws in body appearance by accepting and taking actions in accordance with body appreciation values). Moreover, findings on self-compassionate engagement and action and body appreciation extend previous knowledge on general self-compassion and body appreciation (e.g., Marta-Simões et al., 2015) and are in accordance with recent results of Máximo et al. (2017).

Our findings seem to specifically suggest the special connection between reflecting about how to cope with one's own distress, directing attention to and taking actions to create inner support, helpfulness and encouragement before suffering, and the attitude of acceptance, care, and proud protection of one's body's features (regardless of the detection of disliked body's characteristics), which is defined as body appreciation (Avalos et al., 2005).

In light of the prediction that self-compassion engagement and self-compassionate action would associate with body appreciation with different magnitude, the main aim of the present study was to explore an affect regulation mechanism that could take part in the potentiation of the sensitivity to and motivation to engage with suffering into effective action to deal with and prevent suffering. Thus, we tested a path analysis model which hypothesized psychological inflexibility as a mediator of the association between self-compassionate engagement and action, and all three affect regulation mechanisms as predictors of body appreciation. Results revealed that among emotion regulation, only self-compassionate action and psychological inflexibility act as direct predictors of an accepting and protective attitude toward body image. Specifically, self-compassionate engagement only associates with body appreciation indirectly, via lower psychological inflexibility and higher self-compassionate action. Moreover, the mediator role of psychological inflexibility in the association of self-compassionate engagement with self-compassion action was verified. Both findings were expected, firstly since body appreciation's definition goes in line with both definitions of psychological flexibility and self-compassionate action. Specifically, in order to be actively appreciative, caring and protecting

over perceived flaws in appearance, one must not engage in avoidance or modification of unwanted emotions, feelings or sensations (Avalos et al., 2005, Webb et al., 2014). Moreover, due to the noticeable importance of the body image domain to modern society and the difficulties women must face to achieve the socially desired body appearance, it is legitimate to argue that the development of and engagement in body appreciation attitudes might imply more than sensitivity and motivation to engage with distress and suffering (which may derive from social pressures to be thin, for instance), and actually the promptness to actively gather resources to deal with suffering, and take action to reduce and/or prevent it (self-compassion action) (Avalos et al., 2005, Máximo et al., 2017). The recognition of the newly-found mediator role of psychological inflexibility seems to imply that sensitivity toward and motivation to engage with suffering associates with the ability and wisdom to take action to reduce or prevent suffering via a lower tendency to suppress, avoid or alter the form and/or frequency of undesired and painful emotions, thoughts, sensations or memories. This finding goes in line with previous research which has explored the connection between compassion and psychological flexibility (i.e., that self-compassion relates with the mindful acceptance, defusion, and valued living aspects of psychological flexibility (Marshall & Brockman, 2016); and that psychological flexibility may be useful in the development of self-compassion (Yadavaia, Hayes, & Vilardaga, 2014). In fact, Yadavia et al. (2014) have already underlined the idea that the process of acceptance may be considered an attitude of deep self-kindness since openly contacting one's pain is necessary process for extending understanding to oneself (a coping skill of self-compassion). From these perspectives and from our finding, it might be possible that in self-compassion sensitive and motivated individuals, psychological inflexibility may prevent self-compassionate action, and translate into lower body appreciation. Same results can be interpreted in the opposite ways, i.e., that psychological flexibility may act by unlocking the necessary action skills for self-compassionate action (attending, imagery/sensory experience, thinking/reasoning, behaving and emotion/feeling), and thus translate in a higher display of body appreciation in women. A positive

perspective on these findings might have important implication for the construction of body appreciation promotion programmes.

Several limitations must be taken into account when considering present findings. First of all, although results were supported by robust statistical analysis, the cross sectional and correlational design of the study does not allow causal conclusions, and thus prospective studies are necessary to further explore causality in the explored associations. Second of all, though the tested model was purposely limited in terms of the variables explored, other variables may be involved given the multidimensional character of body appreciation. Moreover, although the sample was intentionally composed of only women, due to the highly significance for women of the matters covered in this study, futures studies should test these hypotheses in mixed-gender samples. Regarding age, it would be very important that future studies on these subjects would target adolescent populations, a choice that could contribute to the design of programs to promote body appreciation, an attitude considered to be central for women's wellbeing and for the prevention of eating disorders. The use of the Exponential Non-Discriminative Snowball Sampling method (Heckathorn, 2011) and the of self-report measures which were not submitted to a counterbalanced measures design may imply bias, and thus upcoming studies should consider the use of other sampling methods and of assessment interviews. Finally, given that the used survey web app is completely confidential and does not register participants ID or IP address, it does not allow to know the number of participants who enrolled the study and then gave up for the reason of not wanting to participate, at all, in the study, which may constitute a limitation of transparency.

In conclusion, and despite a few methodological limitations, present findings seem to add to current knowledge by suggesting the specific involvement of an affect regulation mechanism, that is psychological flexibility, in the unlock of self-compassionate sensitivity and motivation into effective self-compassionate action, which altogether may prompt body appreciation in women.

Due to the consideration of body appreciation as a key-set of attitudes to promote positive body image and prevent negative body image-related disturbances, if present findings were to be confirmed in prospective or intervention designs, the combination of abilities from both Compassion Focused Therapy and Acceptance and Commitment Therapy could be potentially effective in the promotion of positive body image in adult women. Specifically, present results seem to support the need to cultivate acceptance and self-compassionate effective actions, more than just promoting a self-compassionate mindset, in order to promote an attitude of respect, care and protection of one's body features.

Conflict of interest: All authors declare that they have no conflicts of interest.

References

- Attie, I., & Brooks-Gunn, J. (1989). Development of eating problems in adolescent girls: A longitudinal study. *Developmental Psychology, 23*(1), 70–79.
- Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The Body Appreciation Scale: Development and psychometric evaluation. *Body Image, 2*(3), 285–297. <https://doi.org/10.1016/j.bodyim.2005.06.002>
- Barnes, R. D., & Tantleff-Dunn, S. (2010). Food for thought: Examining the relationship between food thought suppression and weight-related outcomes. *Eating Behaviours, 11*(3), 175–179. <https://doi.org/10.1016/j.eatbeh.2010.03.001>
- Berry, K. A., Kowalski, K. C., Ferguson, L. J., & McHugh, T. L. F. (2010). An empirical phenomenology of young adult women exercisers' body self-compassion. *Qualitative Research in Sport and Exercise, 2*(3), 293–312. <https://doi.org/10.1080/19398441.2010.517035>
- Blakey, S. M., Reuman, L., Buchholz, J. L., & Abramowitz, J. S. (2017). Experiential avoidance and dysfunctional beliefs in the prediction of body image disturbance in a nonclinical sample of women. *Body Image, 22*, 72–77. <https://doi.org/10.1016/j.bodyim.2017.06.003>

- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., ... Zettle, R. D. (2011). Preliminary Psychometric Properties of the Acceptance and Action Questionnaire-II: A Revised Measure of Psychological Inflexibility and Experiential Avoidance. *Behaviour Therapy, 42*(4), 676–688. <https://doi.org/10.1016/j.beth.2011.03.007>
- Braun, T. D., Park, C. L., & Gorin, A. (2016). Self-compassion, body image, and disordered eating: A review of the literature. *Body Image, 13*, 1–10. <https://doi.org/10.1016/j.bodyim.2016.03.003>
- Cash, T. F. (2012). *Encyclopedia of Body Image and Human Appearance*. *Encyclopedia of Body Image and Human Appearance* (Vol. 1–2). <https://doi.org/10.1016/C2010-1-66177-9>
- Cash, T. F., & Pruzinsky, T. (1990). The psychology of physical appearance: Aesthetics, attributes, and images. In *Body Images: Development, Deviance, and Change* (pp. 51–79).
- Cooper, P.J., & Fairburn, C.G. (1983). Binge-eating and self-induced vomiting in the community. A preliminary study. *British Journal of Psychiatry, 142*, 139-144.
- Duarte, C., Ferreira, C., Trindade, I. A., & Pinto-Gouveia, J. (2015). Body image and college women's quality of life: The importance of being self-compassionate. *Journal of Health Psychology, 20*(6), 754–764. <https://doi.org/10.1177/1359105315573438>
- Duarte, C., Pinto-Gouveia, J., & Stubbs, R. J. (2017). Compassionate Attention and Regulation of Eating Behaviour: A pilot study of a brief low-intensity intervention for binge eating. *Clinical Psychology and Psychotherapy, 24*(1), 1–10. <https://doi.org/10.1002/cpp.2094>
- Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (2011). The validation of the body image acceptance and action questionnaire: Exploring the moderator effect of acceptance on disordered eating. *International Journal of Psychology and Psychological Therapy, 11*(3), 327–345. <https://doi.org/10.1016/j.bodyim.2015.04.001>
- Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (2013). Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. *Eating Behaviours, 14*(2), 207–210. <https://doi.org/10.1016/j.eatbeh.2013.01.005>

- Gilbert, P. (2005). Compassion and cruelty: A biopsychosocial approach. In Gilbert P, (Ed.), *Compassion: Conceptualizations, research and use in psychotherapy*. London: Routledge.
- Gilbert, P., & Choden. (2014). *Mindful Compassion: How the Science of Compassion Can Help You Understand Your Emotions, Live in the Present, and Connect Deeply with Others*. Oakland, CA: New Harbinger Publications.
- Gilbert, P., Catarino, F., Duarte, C., Matos, M., Kolts, R., Stubbs, J., ... Basran, J. (2017). The development of compassionate engagement and action scales for self and others. *Journal of Compassionate Health Care*, 4(1), 4. <https://doi.org/10.1186/s40639-017-0033-3>
- Gold, D. B., & Wegner, D. M. (1995). Origins of Ruminative Thought: Trauma, Incompleteness, Nondisclosure, and Suppression. *Journal of Applied Social Psychology*, 25(14), 1245–1261. <https://doi.org/10.1111/j.1559-1816.1995.tb02617.x>
- Halliwell, E. (2015). Future directions for positive body image research. *Body Image*. <https://doi.org/10.1016/j.bodyim.2015.03.003>
- Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioural and cognitive therapies. In *Behaviour Therapy* (Vol. 35, pp. 639–665). [https://doi.org/10.1016/S0005-7894\(04\)80013-3](https://doi.org/10.1016/S0005-7894(04)80013-3)
- Hayes, S. C., Wilson, K. W., Gifford, E. V., Follette, V. M, & Strosahl, K. (1996). Experiential avoidance and behavioural disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology*, 64, 1152-1168. <https://doi.org/10.1037/0022-006X.64.6.1152>
- Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological Methodology*, 41(1), 355-366. <https://doi.org/10.1111/j.1467-9531.2011.01244.x>
- Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body Image*, 15, 1–7. <https://doi.org/10.1016/j.bodyim.2015.04.007>

- Johnson, C. L., Tobin, D. L., & Steinberg, S. L. (1989). Etiological, developmental and treatment considerations for bulimia. Special issue: The bulimic college student: Evaluation, treatment and prevention. *Journal of College Student Psychotherapy*, 3(2–4), 57–73.
- Liimakka, S. (2014). Healthy appearances - Distorted body images? Young adults negotiating body motives. *Journal of Health Psychology*, 19(2), 230–241. <https://doi.org/10.1177/1359105312468189>
- Lunde, C. (2013). Acceptance of cosmetic surgery, body appreciation, body ideal internalization, and fashion blog reading among late adolescents in Sweden. *Body Image*, 10(4), 632–635. <https://doi.org/10.1016/j.bodyim.2013.06.007>
- Marshall, E.-J., & Brockman, R. N. (2016). The Relationships Between Psychological Flexibility, Self-Compassion, and Emotional Well-Being. *Journal of Cognitive Psychotherapy*, 30(1), 60–72. <https://doi.org/10.1891/0889-8391.30.1.60>
- Marta-Simões, J., Ferreira, C., & Mendes, A. L. (2016). Exploring the effect of external shame on body appreciation among Portuguese young adults: The role of self-compassion. *Eating Behaviours*, 23, 174–179. <https://doi.org/10.1016/j.eatbeh.2016.10.006>
- Marta-Simões, J., Mendes, A. L., Trindade, I. A., Oliveira, S., & Ferreira, C. (2016). Validation of the Body Appreciation Scale-2 for Portuguese women [abstract proceeding]. *BMC Health Services Research*, 16(Suppl. 3):P82, 92. <https://doi.org/10.1186/s12913-016-1423-5>
- Máximo, A., Ferreira, C., & Marta-Simões, J. (2017). Ações autocompassivas e comportamento alimentar perturbado em mulheres: O efeito mediador da apreciação da imagem corporal [Self-compassionate actions and disordered eating behaviours in women: The mediator effect of body image appreciation]. *Revista Portuguesa de Investigação Comportamental e Social*, 3(2), 32-41. <https://doi.org/10.7342/ismt.rpics.2017.3.2.58>
- Merwin, R. M., Zucker, N. L., Lacy, J. L., & Elliott, C. A. (2010). Interoceptive awareness in eating disorders: Distinguishing lack of clarity from non-acceptance of internal experience. *Cognition and Emotion*, 24(5), 892–902. <https://doi.org/10.1080/02699930902985845>

- Mond, J., Mitchison, D., Latner, J., Hay, P., Owen, C., & Rodgers, B. (2013). Quality of life impairment associated with body dissatisfaction in a general population sample of women. *BMC Public Health, 13*(1). <https://doi.org/10.1186/1471-2458-13-920>
- Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*, 223–250. <https://doi.org/10.1080/15298860390209035>
- Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does Body Satisfaction Matter? Five-year Longitudinal Associations between Body Satisfaction and Health Behaviours in Adolescent Females and Males. *Journal of Adolescent Health, 39*(2), 244–251. <https://doi.org/10.1016/j.jadohealth.2005.12.001>
- Pinto-Gouveia, J., Gregório, S., Dinis, A., & Xavier, A. (2012). Experiential avoidance in clinical and non-clinical samples: AAQ-II Portuguese version. *International Journal of Psychology and Psychological Therapy, 12*(2), 139–156.
- Póinhos, R., Franchini, B., Afonso, C., Correia, F., Teixeira, V. H., Moreira, P., ... de Almeida, M. D. V. (2009). Alimentação e Estilos de Vida da População Portuguesa: Metodologia e Resultados [Feeding and Life Styles of the Portuguese Population: Methodology and Results]. *Alimentação Humana, 15*(3), 43–60.
- Smolak, L., & Cash, T. F. (2011). Future Challenges for body image science, practice, and prevention. In T. F. Cash & L. Smolak (Eds.), *Body image: A Handbook of science, practice, and prevention* (2nd ed., pp. 471–478). New York: Guilford Press.
- Stice, E., & Shaw, H. E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. *Journal of Social and Clinical Psychology, 13*(3), 288–308.
- Thompson, J. K., Heinberg, L. J., & Tantleff-dunn, S. (1999). Exacting beauty: Theory, assessment and treatment of body image disturbance. *American Psychological Association*. <https://doi.org/10.1037/10312-000>

- Tylka, T. L., & Wood-Barcalow, N. L. (2015a). What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image*.
<https://doi.org/10.1016/j.bodyim.2015.04.001>
- Tylka, T. L., & Wood-Barcalow, N. L. (2015b). The body appreciation scale-2: Item refinement and psychometric evaluation. *Body Image*, 12(1), 53–67.
<https://doi.org/10.1016/j.bodyim.2014.09.006>
- Webb, J. B., Butler-Ajibade, P., & Robinson, S. A. (2014). Considering an affect regulation framework for examining the association between body dissatisfaction and positive body image in Black older adolescent females: Does body mass index matter? *Body Image*, 11(4), 426–437. <https://doi.org/10.1016/j.bodyim.2014.07.002>
- WHO. (2000). *Obesity: Preventing and managing the global epidemic - Technical Report Series 894*. Technical Report Series 894. Retrieved from http://www.who.int/nutrition/publications/obesity/WHO_TRS_894/en/
- Yadavaia, J. E., Hayes, S. C., & Vilardaga, R. (2014). Using acceptance and commitment therapy to increase self-compassion: A randomized controlled trial. *Journal of Contextual Behavioural Science*, 3(4), 248–257. <https://doi.org/10.1016/j.jcbs.2014.09.002>

S T U D Y I I

The soothing-affiliation system and body appreciation:
Recollected and present affect

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The soothing-affiliation system and body appreciation: recollected and present affect

Joana Marta-Simões^a, and Cláudia Ferreira^a

^a CINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention,
University of Coimbra, Portugal

Abstract

Attachment and affiliation-related affect has been stated to be a powerful regulator of Human development, maturation, well-being and health. Accordingly, as research on positive body image has evolved, data on the association between non-judgmental interpersonal relationships and body appreciation has emerged.

The present study sought to explore a model linking memories of early affiliative relationships with body appreciation via higher current social safeness and the experience of positive affect in a sample of Portuguese women aged between 18 and 50 years ($N = 286$). Online data collection occurred throughout 2017.

The multivariate analyses of the hypothesized model revealed good fit to the data, and results showed that early memories of warmth and safeness were associated with body appreciation via higher current social safeness and higher safeness/contentment affect. Safeness/contentment affect was the positive affect revealed as being more strongly related to body appreciation.

These results provide strong support for the importance of early and current emotional bonds for women's body appreciation and suggest that therapists should consider the cultivation of affiliation skills when promoting positive body image.

Keywords: Body appreciation; early positive memories; positive affect; positive body image; social safeness; soothing-affiliation system.

Introduction

Research has clarified that early childhood experiences, particularly those related to feelings of threat or safeness, have a key impact on major aspects of Human development, maturation and performance (e.g., physiological, psychological, social) (Waller, Shaw, Forbes and Hyde 2015; Walsh et al. 2019). Research has indeed underlined the association between early affectionate and nurturing experiences with the development of good psychological health indicators (e.g. Stafford et al. 2016), and a higher resistance to mental disturbances (e.g., Matos, Pinto-Gouveia and Duarte 2015; Winston and Chicot 2016). Specifically, data have shown that being able to recollect memories of feeling soothed, cared for, safe and connected to others was positively associated with self-reassurance and with safeness/contentment affect, and negatively with self-criticism and depression, anxiety and stress symptoms (Richter, Gilbert, and McEwan 2009). In terms of physiological impact, recent data has even pointed to an association between the perception of having been exposed to affectionate parenting and a longer telomere length, a genetic feature associated with greater longevity (Knutsen et al. 2019).

On the topic of emotion regulation and under an evolutionary approach, Gilbert (2009) identified three affect regulation systems: one that is often associated with negative affect - the threat and self-protection system, and two linked with positive affect: the incentive and resource-seeking or drive system and the soothing-affiliation system. The soothing-affiliation system is shared among mammals and has grown along with the evolution of attachment (i.e., early childhood experiences associated with affectionate and protecting behaviour of primary caregivers). This system is regulated through the opiate and oxytocin systems which are linked to soothing, calming, and feelings of social connectedness and safeness (e.g., Inagaki et al. 2015;

Schwiger et al. 2013). Moreover, this system is accompanied by positive affect, namely contentment, feelings of social safeness and well-being (Gilbert 2009; Gilbert et al. 2008; Inagaki et al. 2015), which have a strong negative association with depression, anxiety and stress (Gilbert et al. 2008). In fact, levels of social safeness must be assessed in clinical contexts, because social safeness has been found to be a key construct in terms of emotion regulation given the unique relation of its lack with psychosocial vulnerability and maladjustment (e.g., Kelly, Zuroff, Leybman and Gilbert 2012).

Despite its importance in self-evaluations (e.g., Balcetis, Cole, Chelberg, and Alicke 2013), one dimension of special importance in social perceptions and evaluations is body image (e.g., Geiger et al., 2014). In fact, body image-related difficulties are often raised in the context of a social rank and competition-focused mentality (Ferreira et al 2013; Gouveia et al 2014). One of the main reasons that explain the social relevance of body image is Western societies' appreciation of a "thin ideal" for women as a synonym for positive personal characteristics, such as health, success and power (Strahan, Wilson, Cressman, and Buote 2006), which also explains the spread of body image dissatisfaction among women.

One of the most recent conceptual attempts to collect means to decrease the harmfulness of body image dissatisfaction was the definition of the construct positive body image (Smolak and Cash 2011; Tylka 2012). This construct is multifaceted and comprises the concepts of body appreciation, body acceptance, broad conceptualization of beauty, health-conscious investment in appearance, inner positivity, and interpretation of information in a body-protective manner, which includes the rejection of socially-prescribed unrealistic standards of beauty (Tylka and Wood-Barcalow 2015a). Positive body image and, particularly, the facet of body appreciation, is associated with adaptive emotion regulation mechanisms which are connected to the soothing-affiliation system (Gilbert 2009), namely self-compassion (Kelly and Stephen 2016; Marta-Simões, Ferreira, and Mendes 2016), as well as the abilities for mindfulness and humanity (i.e., perceiving

discomfort and suffering as part of the Human shared experience) (Marta-Simões and Ferreira 2018).

Regarding attachment and early relationships, Wood-Barcalow and colleagues (2010) analyzed interviews from young women classified as having a positive body image and found that not feeling criticized by others about body-related characteristics and being able to meaningfully connect and create strong emotional ties with close social agents (family, friends, romantic partners) was important to their sense of body image. In another study with young women (Innantuono and Tylka 2012), insecure attachment was considered as one of the interpersonal barriers to body appreciation and, in a later study, self-compassion was found to hold a central role in explaining the relation between attachment anxiety and body appreciation (Raque-Bogdan et al. 2016). A recent study (Pinto, Ferreira, Mendes, and Trindade 2017) also showed the positive association of social safeness (i.e., feelings of contentment, safeness and connectedness, when one is exposed to close social contexts) and body appreciation and, additionally, that body appreciation functions as a mediator between social safeness and symptoms of disordered eating.

Considering pre-established associations between variables, the present study sought first to explore which specific type of positive affect showed a stronger association with body appreciation. The study then explored the adequacy of a model which hypothesized that the recollection of warmth and safeness memories with early attachment agents was associated with body appreciation via the current perception of the close social environment as safe and the experience of positive affect. Taking into account the importance of the body image dimension for women's well-being and health, the clarification of the role of social factors for women's body image may provide important information for the development of means to promote positive body image in the community and in clinical settings.

Method

Participants

Approval from the Ethics and Deontology Commission of the Faculty of Psychology and Educational Sciences of the University of Coimbra was obtained prior to any procedure, and data collection and other procedures were in accordance with ethical and deontological requirements inherent to scientific research.

Eligibility criteria were being female and above 18 years of age. Participants' recruitment was conducted via email invitations and through social media (Facebook), throughout the year of 2017. Specifically, participation invitations were e-mailed to researchers' personal contact lists and via Facebook, through their publication in groups whose members met the sex and age criteria for inclusion in the present study. The Exponential Non-Discriminative Snowball Sampling Method (Heckathorn 2011) was then used to disseminate invitations to potential participants. These invitations included an explanation about the study's aims and procedures, an informed consent form, as well as an Internet link which redirected participants to an online version of the questionnaires. The online version of the questionnaires was specifically designed to avoid the participation of individuals who did not meet the eligibility criteria. Because this study was intended to be conducted only in females, a total of 119 males were excluded from the final sample. This process resulted in a final sample of 286 women.

Measures

Sociodemographic data. A brief questionnaire collected participants' sex, age, area of residence, completed years of schooling, and self-reported height and weight.

Body Mass Index (BMI). Body mass index was calculated by dividing self-reported current weight by self-reported height squared (Quetelet Index; kg/m^2).

Early Memories of Warmth and Safeness Scale (EMWSS; Richter et al. 2009; Portuguese version by Matos, Pinto-Gouveia, and Duarte 2014) is a 21-item self-report questionnaire that assesses recollections of affectionate interactions with close others (parents, family, extended family) which occurred during childhood. Items include statements such as “I felt peaceful and calm” and “I felt that I was a cherished member of my family” with responses using a Likert-type scale (0 - “No, never”, 1 - “Yes, but rarely”, 2 - “Yes, sometimes”, 3 - “Yes, often”, 4 - “Yes, most of the time”). To analyze EMWSS’ data, items scores were summed, giving a total possible range of scores of 0 to 84. Good psychometric properties of the EMWSS have been reported in literature (Cronbach’s alpha of 0.97 in both the original and Portuguese studies) (Table 1).

Types of Positive Affect Scale (TPAS; Gilbert et al. 2008; Portuguese version by Tinoco 2007) is a self-report instrument that consists of 18 words that describe positive feelings which divide into three subscales: activating positive affect (TPAS_active; e.g., “energetic”, “excited”), relaxed positive affect (TPAS_relaxed; e.g., “relaxed”, “calm”), and safeness/contentment positive affect (TPAS_safe/warmth; e.g., “secure”, “warm”). Respondents are asked to report the degree to which they experience these feelings, using a 5-point scale (0 - “Not Characteristic of me”, 1, 2 and 3 - “Fairly Characteristic of me”, 4 - “Very Characteristic of me”). TPAS’s subscales’ scores were obtained by summing the item scores, giving a total possible range of scores of 0 to 9, 6 or 4, for the activating positive affect, relaxed positive affect or safeness/contentment positive affect, respectively. Both the original and the Portuguese studies of the TPAS revealed good psychometric properties. Specifically, Cronbach’s alpha values of 0.83 and 0.89 (for the original and Portuguese studies, respectively) (Table 1) were obtained for the activating positive affect subscale and for the relaxed positive affect subscale, and of 0.73 and 0.78 (for the original and Portuguese studies, respectively) for the safeness/contentment positive affect subscale.

Social Safeness and Pleasure Scale (SSPS; Gilbert et al. 2009; Portuguese version by Pinto-Gouveia, Matos, and Dinis 2008) aims at assessing emotional experiences such as feelings of belonging, or receiving warmth and safeness signals from others, occurring within a comforting

social environment. This self-report questionnaire comprises 11 items (e.g., “I feel a sense of belonging”, “I find it easy to be calmed by people close to me”) designed to be rated on a 5-point scale from 0 - “Almost never” to 4 - “Almost all the time”. For SPSS data, item scores were summed, giving a total possible range of scores of 0 to 44. Both the original and Portuguese studies of the SPSS have shown its psychometric reliability ($\alpha = 0.92$, Table 1).

Body Appreciation Scale – 2 (BAS; Tylka and Wood-Barcalow 2015b; Portuguese version by Marta-Simões et al. 2016) is a self-report scale that evaluates body appreciation, an aspect of positive body image defined as an accepting, respectful and protective relationship with one’s unique body characteristics, regardless of a normative level of body image dissatisfaction. The BAS is composed of 10 items (e.g., “I appreciate the different and unique characteristics of my body”; “My behaviour reveals my positive attitude toward my body; for example, I walk holding my head high and smiling”). Respondents are requested to state whether each statement is true about them, using a 5-point scale (1 - “Never” (2 - “Seldom”, 3 - “Sometimes”, 4 - “Often”) to 5 - “Always”. To analyze BAS data, item scores were summed and divided by the total number of items to provide an average score with a total possible range of average scores of 1 to 5. This scale has proved its robustness, and showed Cronbach’s alpha values of 0.97 and 0.95, in the original version and the Portuguese validation studies, respectively (Table 1).

Analytic strategy

All data analyses were conducted using IBM SPSS 22.0, for descriptive and correlation analysis, and Amos (version 22.0, SPSS Inc, Chicago, IL), for path analysis. Descriptive statistics (i.e., means, standard deviations, t-tests) were computed to explore the sample’s characteristics. Product-moment Pearson correlation analyses were conducted to test the existence of associations between the studied variables. A multiple regression analysis was conducted to clarify which one of the types of positive affect was most associated with body appreciation. In this analysis, significance of associations (p) and standardized regression coefficients (β) were

used as criteria to include or retain variables. Specifically, only the type of positive affect which presented a significant relation to body appreciation and the highest β value was included in the path analysis model.

To test the main hypothesis of the present study, structural relations (direct and indirect effects) among variables were explored through path analysis. This is a technique of structural equation modeling (SEM) which considers the existence of hypothetical causal relationships between variables which are already predefined. Specifically, the adequacy of a model (which hypothesized that the recollection of early positive emotional and relational memories associates with body appreciation via a sense of safeness within and connectedness in one's social environment and the experience of positive emotions of safeness and contentment) was tested, while controlling for age and BMI. These variables were included in the multivariable model for theoretical reasons (early positive emotional and relational memories and social safeness) and because they were significantly correlated with each other and also with early memories of warmth and safeness in the multiple regression (experience of positive emotions of safeness and contentment) and thus could constitute confounding variables. BMI was also correlated with body appreciation.

Additionally, the choice of using safeness/soothing positive affect as a hypothetical mediator took into account correlation revealed in the regression analysis, i.e., safeness/soothing positive affect was revealed to be the type of affect with highest magnitude and significant association with the main outcome variable (body appreciation). The model was designed to include early positive affiliative memories (EMWSS), age and BMI as endogenous variables; social safeness and pleasure (SSPS) and safeness/contentment positive affect (TPAS_safe/warmth) as endogenous mediator variables; and body appreciation (BAS) as an exogenous variable. The Maximum Likelihood estimation method (with 95% confidence interval) was used to assess the significance of regression coefficients (Kline 2005). The Bootstrap Resampling Method was used to test the significance of mediational paths, using 5000 Bootstrap samples and 95% confidence

intervals (Kline 2005). To assess the credibility of the overall model, several goodness-of-fit measures were used: Chi-Square (χ^2), Normed Chi-Square ($\chi^2/d.f.$), Normed Fit Index (NFI), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), and Root-Mean Square Error of Approximation (RMSEA), with 95% confidence interval.

Results

Descriptive statistics

Participants were aged between 18 and 50 years, with a mean age of 30.34 ($SD = 9.67$) years ($p = 0.886$) (Table 1). Mean of completed years of schooling was of 13.82 ($SD = 13.17$) years. BMI (WHO 1995) values were in accordance with those found in the general Portuguese female population (Poínhos et al. 2009): mean BMI was 23.86 ($SD = 4.59$).

Findings from product-moment Pearson Correlations

The scale of early memories of affiliative experiences (EMWSS) revealed moderate magnitude positive associations with social safeness and pleasure, safeness/contentment positive affect, and body appreciation. This scale's associations with relaxed positive affect and activating positive affect were also positive, but with weak magnitudes. Early memories of warmth and safeness also presented weak negative correlations with age and BMI. Social safeness (SSPS) was positively and strongly associated with relaxed positive affect and safeness/contentment positive affect and with body appreciation, and positively and moderately associated with activating positive affect. The three types of affect subscales (TPAS_relaxed, TPAS_active, and TPAS_safe/warmth) presented moderate to strong-magnitude positive associations among themselves. Relaxed positive affect and activating positive affect presented moderate-strength positive associations with body appreciation, and safeness/contentment positive affect had a strong-magnitude positive association. Body appreciation (BAS) was

associated negatively and weakly with BMI and, finally, age and BMI presented a positive and moderate correlation with each other.

Table 1. Cronbach's alphas (α), means (M), standard deviations (SD), and intercorrelation scores on self-report measures ($N = 286$).

	α	$M (SD)$	1	2	3	4	5	6	7
1.EMWSS	0.98	58.98 (20.56)	-						
2.SSPS	0.95	42.26 (8.57)	0.46***	-					
3.TPAS_relaxed	0.89	14.19 (4.89)	0.28***	0.50***	-				
4. TPAS_active	0.82	24.43 (5.49)	0.28***	0.47***	0.44***	-			
5. TPAS_safe/warmth	0.73	10.52 (2.89)	0.45***	0.61***	0.65***	0.66***	-		
6.BAS	0.96	3.68 (0.85)	0.40***	0.57***	0.41***	0.37***	0.51***	-	
7.Age	-	30.34 (9.67)	-0.18**	0.01	-0.02	0.03	0.00	0.02	-
8.BMI	-	23.86 (4.59)	-	-0.07	-0.10	-0.13*	-0.09	-	0.35***
			0.26***					0.30***	

Note. EMWSS = Early Memories of Warmth and Safeness; SSPS = Social Safeness and Pleasure Scale; TPAS = Types of Positive Affect Scale (TPAS_relaxed = Relaxed Positive Affect subscale; TPAS_active = Activating Positive Affect subscale; TPAS_safe/warmth = Safeness/Contentment Positive Affect subscale); BAS = Body Appreciation Scale – 2; BMI = Body Mass Index.

** $p < 0.010$; *** $p < 0.001$.

Regression analysis

To clarify the differential magnitude of associations of each one of the three types of positive affect (TPAS_relaxed, TPAS_active, and TPAS_safe/warmth; independent variables) with body appreciation (BAS; dependent variable), an unadjusted regression analysis was conducted. Results showed that only relaxed positive affect ($\beta = 0.02$, $p < 0.050$) and safeness/contentment positive affect ($\beta = 0.11$, $p < 0.001$) emerged as significantly associated with of body appreciation, accounting for 27% of the variance of body appreciation.

Path analysis

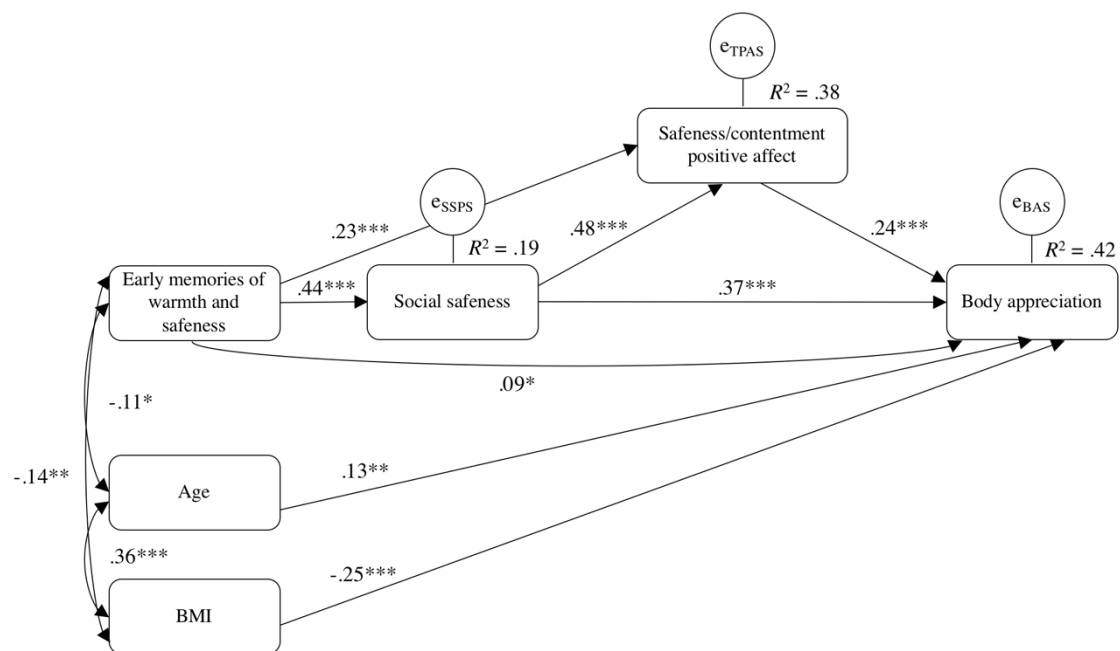
Path analysis started with the evaluation of a model that consisted of 21 parameters, with six degrees of freedom. Early positive affiliative memories (EMWSS), age and BMI were included in the model as endogenous variables; social safeness and pleasure (SSPS) and safeness/contentment positive affect (TPAS_safe/warmth) as endogenous mediator variables; and body appreciation (BAS) as an exogenous variable. This model explained 21% of the variance of social safeness and pleasure, 41% of the variance of safeness/contentment positive affect, and 43% of the variance of body appreciation, and showed adequate fit to empirical data (CMIN/*d.f.* = 1.98, $p = 0.065$; NFI = 0.97; TLI = 0.97; CFI = 0.99; RMSEA = 0.06, 95%CI = 0.000 to 0.108, $p = 0.329$).

Early positive affiliative memories presented significant direct associations with social safeness and pleasure ($\beta = 0.46$; $b_{EMWSS} = 0.19$; $SE_b = 0.02$; $Z = 8.69$; $p < 0.001$) and with safeness/contentment positive affect ($\beta = 0.22$; $b_{EMWSS} = 0.03$; $SE_b = 0.01$; $Z = 4.31$; $p < 0.001$) (Figure 1). Early positive affiliative memories presented an indirect relation with safeness/contentment positive affect ($\beta=0.23$), mediated by social safeness and pleasure (95% CI = 0.165, 0.308), and also body appreciation ($\beta=0.29$), mediated by both social safeness and pleasure and safeness/contentment positive affect (95% CI = 0.209, 0.381). Social safeness and

pleasure was directly associated with both safeness/contentment positive affect ($\beta=0.50$; $b_{SSPS} = 0.17$; $SE_b = 0.01$; $Z = 9.84$; $p < 0.001$) and body appreciation ($\beta=0.41$; $b_{SSPS} = 0.04$; $SE_b = 0.01$; $Z = 7.25$; $p < 0.001$). This variable was also associated with body appreciation via safeness/contentment positive affect ($\beta = 0.12$; 95% CI = 0.059, 0.189). Finally, safeness/contentment positive affect showed a direct association ($\beta=0.23$) with body appreciation ($b_{TPAS_safe/warmth} = 0.07$; $SE_b = 0.02$; $Z = 4.17$; $p < 0.001$), and BMI showed a negative direct association with body appreciation ($\beta = -0.25$; $b_{BMI} = -0.05$; $SE_b = 0.01$; $Z = -5.52$; $p < 0.001$).

Overall, the main result of the path analysis was the suggestion that the recollection of early positive affiliate memories was associated with a higher display of body appreciation via a current sense of safeness and comfort within and connectedness to one's social world, and a higher frequency of positive affect of safeness and contentment. Additionally, current social safeness feelings present both direct and indirect associations with body appreciation, via higher frequency of positive affect of safeness and contentment.

Figure 1. Final path model. Standardized path coefficients amongst variables are presented.



Note. EMWSS = Early Memories of Warmth and Safeness; SSPS = Social Safeness and Pleasure Scale; TPAS_safe/warmth = Types of Positive Affect Scale (Safeness/Contentment Positive Affect subscale); BAS = Body Appreciation Scale – 2; BMI = Body Mass Index.

* $p < .050$; ** $p < .010$; *** $p < .001$.

Discussion

Research has well-established the importance of early and present affiliative relationships, which are known for positive effects on Human development, maturation, well-being and health (e.g., Gilbert et al. 2009). Novel investigations on body image have also provided considerable insights on the importance of holding a positive body image, i.e., appreciation and protection attitudes and behaviours toward the body. Because body appreciation has been suggested to be a relevant correlate of well-being and health indicators, as well as a mechanism to protect Humans from body image and eating-related disturbances (e.g., Tylka and Wood-Barcalow 2015b; Marta-Simões et al. 2016), the present study intended to reach a clearer understanding about the relationship of early personal memories of warmth and safeness and body appreciation, in a sample of adult women.

Results of correlation analyses were in accordance with what was expected, i.e., memories of past affiliative experiences (early memories of warmth and safeness) were associated with both current experiences of safeness and connectedness within social interactions (social safeness and pleasure) and the experience of safeness and contentment affect (as measured by the TPAS_safe/warmth subscale). Although novel, these findings are supported by Balwin and Deandeneau's theoretical accounts (2005) on long-term effects of early affiliative signals, i.e., their association with later adaptive patterns of interpersonal relatedness and regulation of affective states. Regarding the outcome variable, body appreciation, the variable which presented a stronger correlation was social safeness. This result enhances the role

of body image in others' and self-evaluations and suggests that when women are under a state of safeness in their social contexts, they may be more prone to appreciate their body image and protect their body features and function.

Regarding the first aim of this study, correlation and regression analyses tested which one of the three types of positive affect held the stronger association with body appreciation. Correlation analyses showed that the type of positive affect which presented the highest magnitude correlations with all other variables in study was safeness, soothing and contentment-related positive affect. This finding is well-supported by literature in relation to early memories of warmth and safeness and social safeness and pleasure (Richter, Gilbert, and McEwan 2009). Nonetheless, regarding body appreciation, it is a novel finding that provides further support to the affiliative and soothing character of body appreciation. A regression analysis then revealed both relaxed and safeness/contentment types of positive affect were significantly associated with positive body image, nonetheless safeness/soothing affect was the most prominent factor related to this outcome, and thus was the one included in the path analysis. This result shows that body appreciation is more associated with an emotional state of warmth, soothing and safeness, than with a state of excitement about owning something desired or promptness to achieve positive outcomes (“activating, seeking and doing positive affect”), or with a state of relaxation, i.e., of low activity in the threat system. Previous research has indeed shown a connection between body appreciation and variables associated with Gilbert’s soothing-affiliation affect regulation system (2009), namely compassion-related variables (Kelly and Stephen 2016; Marta-Simões et al. 2016) and social safeness (Pinto et al. 2017).

A path analysis was conducted to test the second and main hypothesis of the present study, that is whether social safeness and pleasure and safeness/contentment positive affect mediated the association between early memories of warmth and safeness and body appreciation. This hypothesis was confirmed, because all paths of the theoretical model tested were statistically significant, and the model presented an adequate fit to empirical data,

accounting for 21%, 41% and 43% of the variances of social safeness and pleasure, safeness/contentment positive affect and body appreciation. This model presents several important relationships to analyze (Figure 1). First, the analysis showed that a higher recollection of early memories of safeness and warmth was associated with present safeness/contentment positive affect both directly and indirectly (i.e., via higher social safeness and pleasure feelings). This result is in line with attachment theories which claim that early feelings of safeness are crucial for the development of secure attachment (Tizzard, 2009), and for long-term interpersonal dynamics and emotional regulation (Baldwin and Dandeneau 2005; Dupue and Morrone-Strupinsky 2005).

Secondly and most importantly, the path analysis indicated that both social safeness and safeness/contentment positive affect appear to function as mediators of the relationship (which was also direct) between early memories of warmth and safeness and body appreciation. Thus, it seems that the ability to recollect positive memories of early affiliative relationships was associated with the present experience of feelings of safeness and belonging around and closeness to others. These feelings in turn seem to be linked to the frequent experience of safeness and soothing positive affect, and thus with body appreciation. This particular result underscores the relevance of the suggestion that body appreciation and, in a broad sense, positive body image, is associated with interpersonal factors (Iannantuono and Tylka 2012; Pinto et al. 2017; Wood-Barcalow et al. 2010), but extends previous knowledge by highlighting the importance of experiencing emotions associated with past and present kind, safe, and soothing relationships to one's sense of safeness and warmth with and within one's own body. Moreover, both the recollection of early memories of warmth and safeness and present social safe relationships were associated with body appreciation via the experience of emotions associated with acceptance, safeness and comfort with one's self, body and context. Additionally, these optimal interpersonal-relatedness factors (early warm and safe relationships and present social safeness) may promote body appreciation characteristics, which are fundamental to Human well-

being and health, namely the health-conscious investment in appearance and the rejection of socially-prescribed unrealistic standards of beauty.

Although the present results appear to be further informative in the field of positive body image, some limitations of this study should be considered. Because the data were collected cross-sectionally, causal interpretations should not be made, and so longitudinal designs should be explored in the future to corroborate the direction of the explored associations. Moreover, other age ranges should be analyzed, namely adolescent populations (due to the particular importance of body image in this developmental stage). Finally, the use of self-reported measures may have resulted in errors or bias in recall, and thus upcoming studies should consider the use of assessment interviews.

In conclusion, the results of the present study add to the literature by further detailing the association of attachment and social-relatedness to body appreciation. Specifically, the present study presents a model that showed that the availability of memories of early relationships characterized by feelings of safeness and warmth were associated with body-related attitudes of acceptance, kindness and protection, via the current experience of safe and pleasurable social relationships and of emotions that derive from affiliation, contentment, safeness and soothing. These findings underscore the importance of early and current emotional ties for women's sense of body appreciation. In terms of intervention implications, the cultivation of attachment and affiliation skills seems to be of particular importance for the promotion of positive body image, which is known to take an important part in the definition of Human well-being and health.

Conflict of interest: The authors declare no conflict of interests.

References

- Balcetis, Emily, Shana Cole, Marie B. Chelberg, and Mark Alicke. 2013. "Searching Out the Ideal: Awareness of Ideal Body Standards Predicts Lower Global Self-Esteem in Women." *Self and Identity*. doi:10.1080/15298868.2011.639549.
- Baldwin, Mark W, and Stéphane Dandeneau. 2005. "Understanding and Modifying the Relational Schemas Underlying Insecurity." In *Interpersonal Cognition*.
- Depue, Richard A., and Jeannine V. Morrone-Strupinsky. 2005. "A Neurobehavioural Model of Affiliative Bonding: Implications for Conceptualizing a Human Trait of Affiliation." *Behavioural and Brain Sciences*. doi:10.1017/S0140525X05000063.
- Fairburn, Christopher G., Zafra Cooper, and Roz Shafran. 2003. "Cognitive Behaviour Therapy for Eating Disorders: A 'Transdiagnostic' Theory and Treatment." *Behaviour Research and Therapy*. doi:10.1016/S0005-7967(02)00088-8.
- Ferreira, Cláudia, José Pinto Gouveia, and Cristiana Duarte. 2013. "Drive for Thinness as a Women's Strategy to Avoid Inferiority." *International Journal of Psychology and Psychological Therapy*.
- Geiger, Ashley M., Natalie J. Sabik, Sarah B. Lupis, Kirsten M. Rene, and Jutta M. Wolf. 2014. "Perceived Appearance Judgments Moderate the Biological Stress Effects of Social Exchanges." *Biological Psychology*. <https://doi.org/10.1016/j.biopsycho.2014.10.005>.
- Gilbert, P. 2009. "Compassionate Mind Training." *Healthcare Counselling & Psychotherapy Journal*.
- Gilbert, P., K. McEwan, R. Mitra, L. Franks, A. Richter, and H. Rockliff. 2008. "Feeling Safe and Content: A Specific Affect Regulation System? Relationship to Depression, Anxiety, Stress, and Self-Criticism." *Journal of Positive Psychology*. doi:10.1080/17439760801999461.
- Gilbert, Paul, Kirsten McEwan, Ranjana Mitra, Anne Richter, Leigh Franks, Alison Mills, Rebecca Bellew, and Corinne Gale. 2009. "An Exploration of Different Types of Positive Affect in Students and Patients with a Bipolar Disorder." *Clinical Neuropsychiatry*.

- Griffiths, Scott, Phillipa Hay, Deborah Mitchison, Jonathan M. Mond, Siân A. McLean, Bryan Rodgers, Robin Massey, and Susan J. Paxton. 2016. "Sex Differences in the Relationships between Body Dissatisfaction, Quality of Life and Psychological Distress." *Australian and New Zealand Journal of Public Health*. doi:10.1111/1753-6405.12538.
- Heckathorn, Douglas D. 2011. "Comment: Snowball versus Respondent-Driven Sampling." *Sociological Methodology*. doi:10.1111/j.1467-9531.2011.01244.x.
- Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological Methodology*, 41(1), 355-366. <https://doi.org/10.1111/j.1467-9531.2011.01244.x>
- Iannantuono, Amy C., and Tracy L. Tylka. 2012. "Interpersonal and Intrapersonal Links to Body Appreciation in College Women: An Exploratory Model." *Body Image*. doi:10.1016/j.bodyim.2012.01.004.
- Jacobi, C., and Fittig, E. "Psychosocial risk factors for eating disorders." In *Oxford library of psychology. The Oxford handbook of eating disorders*, edited by W. S. Agras, 123-136. New York, NY: Oxford University Press, 2010.
- Kelly, Allison C., David C. Zuroff, Michelle J. Leybman, and Paul Gilbert. 2012. "Social Safeness, Received Social Support, and Maladjustment: Testing a Tripartite Model of Affect Regulation." *Cognitive Therapy and Research*. <https://doi.org/10.1007/s10608-011-9432-5>.
- Kelly, Allison C., and Elizabeth Stephen. 2016. "A Daily Diary Study of Self-Compassion, Body Image, and Eating Behaviour in Female College Students." *Body Image*. doi:10.1016/j.bodyim.2016.03.006.
- Kline, Rex B. 2011. *Principles and Practice of Structural Equation Modeling. Structural Equation Modeling*. doi:10.1038/156278a0.
- Knutsen, R., V. Filippov, S. F. Knutsen, G. E. Fraser, J. Lloren, D. Juma, and P. Duerksen-Hughes. 2019. "Cold Parenting Is Associated with Cellular Aging in Offspring: A Retrospective Study." *Biological Psychology*. <https://doi.org/10.1016/j.biopsycho.2019.03.013>.

- Marta-Simões, J., Mendes, A. L., Trindade, I. A., Oliveira, S., and Ferreira, C. 2016. "Validation of the Body Appreciation Scale-2 for Portuguese women [abstract proceeding]". *BMC Health Services Research*. doi:10.1186/s12913-016-1423-5.
- Marta-Simões, J., and Ferreira, C. 2018. "Elements of self-compassion and self-judgment in body appreciation [abstract proceeding]". *European Psychiatry*. doi: 10.1016/j.eurpsy.2017.12.010.
- Marta-Simões, Joana, Cláudia Ferreira, and Ana Laura Mendes. 2016. "Exploring the Effect of External Shame on Body Appreciation among Portuguese Young Adults: The Role of Self-Compassion." *Eating Behaviours*. doi:10.1016/j.eatbeh.2016.10.006.
- Matos, Marcela, José Pinto Gouveia, and Cristiana Duarte. 2014. "Psychometric properties of the Portuguese version of the Early Memories of Warmth and Safeness Scale." Manuscript Submitted for Publication.
- Matos, Marcela, José Pinto Gouveia, and Cristiana Duarte. 2015. "Constructing a Self Protected against Shame: The Importance of Warmth and Safeness Memories and Feelings on the Association between Shame Memories and Depression." *International Journal of Psychology and Psychological Therapy*.
- Pinto-Gouveia, J., Matos, M., and Dinis, A. 2008. "Portuguese version of the social safeness and pleasure scale." Unpublished manuscript.
- Pinto-Gouveia, José, Cláudia Ferreira, and Cristiana Duarte. 2014. "Thinness in the Pursuit for Social Safeness: An Integrative Model of Social Rank Mentality to Explain Eating Psychopathology." *Clinical Psychology & Psychotherapy*. doi:10.1002/cpp.1820.
- Pinto, Catarina, Cláudia Ferreira, Ana Laura Mendes, and Inês A. Trindade. 2017. "Social Safeness and Disordered Eating: Exploring Underlying Mechanisms of Body Appreciation and Inflexible Eating." *Eating and Weight Disorders*. doi:10.1007/s40519-017-0384-y.

- Póinhos, R., B. Franchini, C. Afonso, F. Correia, V.H. Teixeira, P. Moreira, C. Durão, et al. 2009. "Alimentação E Estilos De Vida Da População Portuguesa: Metodologia E Resultados." *Alimentação Humana*.
- Porges, S. W. (2007). The polyvagal perspective. *Biological Psychology*, 74, 116-143. <https://doi:10.1016/j.biopsycho.2006.06.009>
- Raque-Bogdan, Trisha L., Sarah Piontkowski, Kayi Hui, Kathryn Schaefer Ziemer, and Patton O. Garriott. 2016. "Self-Compassion as a Mediator between Attachment Anxiety and Body Appreciation: An Exploratory Model." *Body Image*. doi:10.1016/j.bodyim.2016.08.001.
- Richter, A., Paul Gilbert, and K. McEwan. 2009. "Development of an Early Memories of Warmth and Safeness Scale and Its Relationship to Psychopathology." *Psychology and Psychotherapy: Theory, Research and Practice*. doi:10.1348/147608308X395213.
- Smolak, L., & Cash, T. F. "Future challenges for body image science, practice, and prevention." In *Body image: A handbook of science, practice, and prevention*, edited by T. F. Cash and L. Smolak, 471-478. New York, NY: Guilford Press, 2011.
- Stafford, Mai, Diana L. Kuh, Catharine R. Gale, Gita Mishra, and Marcus Richards. 2016. "Parent–Child Relationships and Offspring’s Positive Mental Wellbeing from Adolescence to Early Older Age." *Journal of Positive Psychology*. <https://doi.org/10.1080/17439760.2015.1081971>.
- Strahan, Erin J., Anne E. Wilson, Kate E. Cressman, and Vanessa M. Buote. 2006. "Comparing to Perfection: How Cultural Norms for Appearance Affect Social Comparisons and Self-Image." *Body Image*. doi:10.1016/j.bodyim.2006.07.004.
- Tinoco, A. C. 2008. "Compaixão pelo eu e Compaixão pelos outros: sua relação, avaliação e associação com a psicopatologia, felicidade e afecto positivo [Compassion for the self and compassion for others: its relationship, evaluation and association with psychopathology, happiness and positive affect] (Unpublished master's thesis)". University of Coimbra, Coimbra, Portugal.

- Tizard, Barbara. 2009. "The Making and Breaking of Attachment Theory." *Psychologist*.
- Tylka, T. L. 2012. "Positive Psychology Perspectives on Body Image." In *Encyclopedia of Body Image and Human Appearance*. doi:10.1016/B978-0-12-384925-0.00104-8.
- Tylka, Tracy L., and Nichole L. Wood-Barcalow. 2015a. "What Is and What Is Not Positive Body Image? Conceptual Foundations and Construct Definition." *Body Image*. doi:10.1016/j.bodyim.2015.04.001.
- Tylka, Tracy L., and Nichole L. Wood-Barcalow. 2015b. "The Body Appreciation Scale-2: Item Refinement and Psychometric Evaluation." *Body Image*. doi:10.1016/j.bodyim.2014.09.006.
- WHO. 1995. "Physical Status: The Use and Interpretation of Anthropometry. Report of a WHO Expert Committee." *World Health Organization Technical Report Series*. doi:854.
- Winston, Robert, and Rebecca Chicot. 2016. "The Importance of Early Bonding on the Long-Term Mental Health and Resilience of Children." *London Journal of Primary Care*. <https://doi.org/10.1080/17571472.2015.1133012>.
- Wood-Barcalow, Nichole L., Tracy L. Tylka, and Casey L. Augustus-Horvath. 2010. "'But I Like My Body': Positive Body Image Characteristics and a Holistic Model for Young-Adult Women." *Body Image*. doi:10.1016/j.bodyim.2010.01.001.

STUDY III

Early memories of warmth and safeness, and current social safeness:
Longitudinal contributions for girls' body appreciation

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Paper under review

Early memories of warmth and safeness, and current social safeness: Longitudinal contributions for girls' body appreciation

Joana Marta-Simões^a, Tracy L. Tylka^b, and Cláudia Ferreira^a

^a CINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

^b Department of Psychology, The Ohio State University, Columbus and Marion Campuses, Columbus, Ohio, United States

Abstract

During adolescence, body image plays an increasingly central role in girls' well-being and overall functioning. One dimension that has been associated with girls' body image is social relationships, specifically those established with close others and peers. Cross-sectional findings on the association between both early positive relational memories and current feelings of social pleasure and safeness with body appreciation, an aspect of positive body image, have been recently reported. Nonetheless, this association lacked longitudinal confirmation. The present study thus aimed at exploring associations between these variables along 12 months. Also, the mediating effect of social safeness and pleasure in the association between early memories of warmth and safeness and body appreciation was longitudinally tested.

A total of 236 female adolescents, aged between 12 and 18, participated in the study. Participants completed self-report questionnaires in a school context in three waves of data, 6 months apart. Data was analysed via descriptive, correlational, ANOVA and path analysis.

Results pointed positive over time correlations, with moderate to strong magnitudes, between the variables in study. Also, means of the variables in study decreased along the 12

months. A path analysis confirmed the mediating effect of social safeness and pleasure in the association between early positive emotional memories and body appreciation.

In conclusion, this study shows that current feelings of social safeness are a mechanism that underlies the association between being able to recall positive emotions of early relationships and girls' body appreciation attitudes.

Keywords: Early positive memories; Social safeness; Body appreciation; Positive body image; Adolescence

Introduction

The literature has widely covered the profound impact of body image on female adolescents' health and well-being. For instance, some studies have reported a very high incidence of body image dissatisfaction (from 60% to almost 80%) among girls (Ganesan et al., 2018; Petroski et al., 2012), including studies conducted in samples of Portuguese adolescents (Borges et al., 2013). Several factors have been pointed out to explain this phenomenon, namely low self-esteem, perfectionism, interpersonal and social influences (such as social pressure to be thin) and high body mass index (BMI) and body size (e.g., Paxton, 2003). The importance of studying the mechanisms behind body image dissatisfaction in young ages lies on its association with non-adaptive unhealthy behaviours and psychological suffering. In fact, body image dissatisfaction is associated with unhealthy weight control behaviours (e.g., skipping meals; Ganesan, 2018), binge eating (Benowitz-Fredericks et al., 2012), depression and feelings of hopelessness (Voelker et al., 2015).

Traditionally, research on body image has indeed focused on negative body image (e.g., body image dissatisfaction, body shame, etc; Avalos et al., 2005), although more recently, i.e., in the last two decades, there has been an appeal for the study of positive variables associated with body image, and its connection to well-being (Avalos et al., 2005; Tylka, 2018). The value of

studying positive body image in adolescence relies on its vital role in promoting healthy development in adolescent girls (Wertheim & Paxton, 2011). Indeed, research in adolescence has been showing that overall health outcomes appear to be improved in individuals with positive body image (Hartman-Munick et al., 2020). Most studies on positive body image have focused on body appreciation, a key-facet of positive body image defined as appreciating one's own unique bodily characteristics even though they may not match socially idealized beauty ideals and protecting the body from negative influences (Avalos et al., 2005). In adolescents, these studies found a positive association of body appreciation with self-esteem, body functionality, and sports participation (Baceviciene & Jankauskiene, 2020), psychological, physical, and school-environment dimensions of quality of life (Marta-Simões et al., 2020). Also, several studies point out the association between body appreciation and interpersonal factors, such as general and body-related unconditional acceptance from others, social safeness and early positive emotional memories from close others and peers (e.g., Avalos & Tylka, 2016; Marta-Simões & Ferreira, 2020a; Wood-Barcalow et al., 2010). On the other hand, negative correlations were found between body appreciation and body mass index, body dissatisfaction, and disordered eating (Baceviciene & Jankauskiene, 2020; Marta-Simões et al., 2021). Overall, researching positive body image is believed to contribute to a new level of prevention of and intervention with body image-related disturbances. Specifically, a focus on positive body image may have the potential of going beyond removing negative symptoms of body image disturbance and nurturing a more neutral or even positive relationship with one's unique bodily characteristics (e.g., Cash, 2004).

Early memories of warmth and safeness have been associated in cross-sectional studies with body appreciation (Marta-Simões et al., 2020; Marta-Simões & Ferreira, 2020a; Marta-Simões & Ferreira, 2020b; Oliveira et al., 2016). These memories refer to the recall of one's own inner positive feelings, emotions and experiences in childhood (Richter et al., 2009), which are considered very important to Human maturation and functioning (e.g., Gerhardt, 2004). Early positive rearing memories have been associated with self-esteem, happiness, and of a lower

susceptibility to psychopathology (Cheng & Furnham, 2004; DeHart et al., 2006; Mikulincer & Shaver, 2004). Several studies have also explored the positive associations of early memories of warmth and safeness with two indicators of adaptive emotion regulation and well-being: self-compassion (Ferreira et al., 2017; Marta-Simões et al., 2018; Marta-Simões & Ferreira, 2020b; Oliveira et al., 2016), and current feelings of social safeness and pleasure (Oliveira et al., 2016; Silva et al., 2019; Marta-Simões et al., 2020; Marta-Simões & Ferreira, 2020a, 2020b). Finally, early memories of warmth and safeness, self-compassion and feelings of social safeness and pleasure have been positively associated with each other and found to be negatively associated with body image and eating-related difficulties (Ferreira et al., 2017; Marta-Simões & Ferreira, 2020b).

Feelings of social safeness and pleasure refer to a current experience of the social world as reliable and soothing, i.e., a context where one feels belonging, acceptance, warmth, and friendliness from others (Alavi et al., 2016; Gilbert et al., 2009). During adolescence, signs of current feelings of social safeness (i.e., social competence, the ability to establish positive friendships, being more trusting of others) are thought to be associated with early positive rearing experiences such as having grown up in a caring and supportive environment (e.g., Gilbert & Irons, 2008; Irons et al., 2006). Social safeness and pleasure is also linked to several indicators of healthy psychological functioning, namely body appreciation and well-being (Marta-Simões et al., 2020), self-compassion and the ability to receive others' compassion (Kelly & Dupasquier, 2016; Marta-Simões et al., 2021), and life satisfaction (Akin & Akin, 2015).

Considering the importance of both early rearing experiences and current social warmth for adolescents' well-being and healthy functioning, the present study aimed at confirming longitudinally a pre-hypothesized (e.g., Marta-Simões & Ferreira, 2020a, 2020b) association between early memories of warmth and safeness, current feelings of social safeness and pleasure and body appreciation. Specifically, the current study aims at testing the mediating effect of social safeness in the relationship between early positive memories and current attitudes of body

appreciation, in a sample of female adolescents. The first hypothesis considered in the present study is that, along the 12 months, scores of the variables in study decrease. Main hypothesis are that early memories of warmth and safeness are longitudinally and positively associated with body current feelings of social safeness and body appreciation, and that social safeness may act as a mediator of the association between early memories of warmth and safeness and body appreciation.

Method

Participants

A total of 236 girls participated in all three waves of the study (W1, initial assessment; W2, second assessment, 6 months after the initial; and W3 final assessment, 12 months after de initial) and comprised the final sample. At W1, participants age ranged between 12 and 18 years ($M = 14.15$, $SD = 1.58$). Two hundred and thirty-three were of Portuguese nationality, and 3 reported to be of other nationalities. The totality of participants lived in the centre region of Portugal, with 167 (70.8%) residing in an urban zone and 69 (29.2%) in a rural zone. Most participants attended the 10th grade ($n = 61$, 25.8%), followed by the 7th grade ($n = 60$, 25.4%), the 8th grade ($n = 52$, 22%), the 9th grade ($n = 40$, 16.9%), and the 11th grade ($n = 23$, 9.7%).

Measures

The following self-report scales were presented to participants in its Portuguese language validated versions for adolescents. All measures were administered at W1, W2 and W3, with 6 months apart.

Early Memories of Warmth and Safeness Scale for Adolescents (EMWSS-A; original version by Richter et al., 2009; Portuguese version for adolescents by Cunha et al., 2011) assesses recollections of childhood interactions with close others in which the individual felt warm, safe,

and cared for. It comprises 21 items such as “I felt peaceful and calm” and “I felt that I was a cherished member of my family”. Respondents use Likert-type scale (from 0 – “No, never” to 4 – “Yes, most of the time”) to state their position toward each item. Good psychometric properties of the EMWSS have been reported in literature (Cronbach’s alpha of .97 in the original, and .95 in the Portuguese studies for adolescents).

Social Safeness and Pleasure Scale (SSPS; original version by Gilbert et al., 2009; Portuguese version for adolescents by Miguel et al., 2019) is a 11-items scale that evaluates adolescents’ current feelings of belonging, acceptance, and safeness in their close social context. Items (e.g., “I feel a sense of warmth in my relationships with people”, “I feel easily soothed by those around me”) are rated on a 5-point scale (0 = “Almost never” to 4 = “Almost all the time”). The SSPS has shown reliability and validity in the original study ($\alpha = .92$) and in the Portuguese version for adolescents ($\alpha = .93$).

Body Appreciation Scale – 2 (BAS-2; original version by Tylka & Wood-Barcalow, 2015; Portuguese version for adolescents by Lemoine et al., 2018). The BAS-2 evaluates an aspect of positive body image defined as body appreciation. Specifically, it assesses respondents’ acceptance, care for, and respect towards their body characteristics, along with the rejection of harmful appearance ideals promoted by the media. It comprises 10 items such as “I am comfortable in my body”, “I appreciate the different and unique characteristics of my body”). Respondents use a 5-point scale ranging from 1 - “Never” to 5 – “Always”. Good psychometric properties were reported in both the original version ($\alpha = .97$) and the Portuguese one for adolescents ($\alpha = .94$ for girls).

Procedures

The study was approved by the Portuguese Data Protection Authority (authorization n.º 109/2017), and by the Directorate-General for Education (the national entity responsible for the ethics of studies conducted in school settings; registration n.º 0596700001). Authorization was also solicited to the executive boards of the schools involved. The sample was recruited through

a non-probability sampling method (i.e., convenience sample). Since participants were mostly under 18, written informed consent was asked from parents and legal guardians of students, in addition to verbal consent of students themselves.

Participants were recruited from five different independent schools. Of the schools that accepted to participate in this study, two of them were middle education schools and three were both middle and secondary education schools. The schools were in the district of Coimbra (two were located in the urban area of Coimbra, two in the peripheral area of Coimbra, and the third in the urban area of Figueira da Foz).

Participation in this study consisted of filling in a set of self-report questionnaires and a sociodemographic questionnaire in the classroom, using about 20 minutes of time made available by the teacher. During all moments of data collection, two members of the research team were present to clarify the goals of the study and any doubts that could arise. Self-report instruments were presented in their Portuguese validated versions, and the set of questionnaires used a counterbalanced order across participants. Participants did not receive any incentive or compensation for their participation.

Three waves of data (wave 1, W1; wave 2, W2; and wave 3, W3) were collected in the same adolescents, aged between 12 and 18, during a period of 12 months, each separated by a period of 6 months. wave 1 (W1) was collected between December 2017 and January 2018, wave 2 (W2) between June and July 2018, and wave 3 (W3) between December 2018 and January 2019. A total of 587 participants answered the questionnaires at all assessment moments. Of those, 177 presented with missing values. A listwise deletion approach was adopted in relation to cases with missing values (i.e., they were excluded from the sample and not considered in the participants or results sections of this manuscript). Considering that the present study intended to study adolescent girls, a total of 174 boys were removed from the sample. The final sample comprised 236 adolescent girls.

Analytic Strategy

Descriptive and correlation analyses were used to explore the characteristics of participants (demographic variables) and of the variables in study. These analyses were carried out using SPSS (version 25.0).

A repeated measures ANOVA (RMA) was conducted to compare the means of the variables at waves 1, 2 and 3. The Mauchly's test was used to assess the homogeneity of the variance; the Greenhouse-Geisser method) was used to calculate *P* value and then a pair-wise comparison contains multiple paired *t* tests with a Bonferroni correction was used (Mishra et al., 2019).

Pearson product-moment correlation coefficients were performed to explore the relationships between all variables in study. The strength of the relationships amongst variables was analyzed according to Cohen's guidelines (1988), i.e., correlations from .10 to .29 were considered small; .30 to .49 medium; and .50 to 1.0 were found to be large.

To test the main hypothesis, i.e., the mediation effects of social safeness and pleasure on the association between early memories of warmth and safeness (independent variable) and body appreciation (outcome variable), a cross-lagged panel model (CLPM) for longitudinal data was explored. The use of longitudinal data in this study is justified by the fact that this analysis allows more mediation analysis options, such as the CLPM; Cole & Maxwell, 2003). This structural model allows a stronger assumption about the direction of causality and reduces parameter bias (Cole & Maxwell, 2003; MacKinnon, 2008), by assessing each study variable at multiple times. Specifically, for the study to be considered fully longitudinal mediation model, it must comprise three waves of data. Moreover, variables are assessed in multiple times to analyze whether the levels of variables at initial time points impact on values at later time points (Cole & Maxwell, 2003; Selig & Preacher, 2009).

To analyze the CLPM, the software IBM AMOS (version 25.0) was used. To estimate structural associations (direct and indirect effects) and the significance of direct and indirect

paths, the maximum-likelihood estimation method was used (with 95% confidence interval). The Bootstrap Resampling Method was used to test the significance of mediational paths, using 5000 Bootstrap samples and 95% confidence intervals (Kline 2011). Finally, the fit of the model to the empirical data was assessed through the analysis of several fit indices: the Chi-Square (χ^2 ; Hair et al., 1998) and the Normed Chi-Square ($\chi^2/d.f.$; Hair et al., 1998), the Standardized Root Mean Squared Residual (SRMR; Hu & Bentler, 1999), the Tucker Lewis Index (TLI; Hu & Bentler, 1999), Comparative Fit Index (CFI; Hu & Bentler, 1999), and the Normed Fit Index (NFI; Hair et al., 1998).

Results

Descriptive analyses and ANOVA results

Descriptive analyses of the variables in study are presented in Table 1. Moreover, a within subjects' analysis of variance (ANOVA) was conducted to compare scores on the studied variables at wave 1, wave 2 and wave 3. Results indicated that means of early memories of warmth and safeness decreased over time ($F_{(1.889, 443,819)} = 31.421, p < .001$), as well as social safeness ($F_{(1.415,332.624)} = 108.830, p < .001$) and body appreciation's mean values ($F_{(1.559, 366.377)} = 126.953, p < .001$).

Table 1. Means (M), Standard Deviations (SD), and Cronbach's alphas (α) of the study variables in the three waves ($N = 236$).

Variables	W1		W2		W3	
	α	<i>M (SD)</i>	α	<i>M (SD)</i>	α	<i>M (SD)</i>
EMWSS	.96	72.81 (9.85)	.97	72.09 (10.49)	.97	68.95 (10.82)
SSPS	.94	43.65 (8.66)	.95	40.70 (9.56)	.95	68.95 (10.82)
BAS	.95	3.82 (.79)	.95	3.57 (.90)	.94	3.27 (.90)

Correlation analysis

Correlation analyses' results are presented in Table 2. The most interesting results to note are the significant positive ($p < .001$) correlations between both early memories of warmth and safeness (EMWSS) and social safeness (SSPS; with moderate strength) at baseline with body appreciation (BAS) 6 months (W2) and 12 months (W3) later.

Table 2. Intercorrelation scores of the study variables in the three waves ($N = 236$).

		W1			W2			W3		
Variables		EMWSS	SSPS	BAS	EMWSS	SSPS	BAS	EMWSS	SSPS	BAS
	EMWSS	-								
W1	SSPS	.36***	-							
	BAS	.31***	.45***	-						
	EMWSS	.71***	.35***	.31***	-					
W2	SSPS	.41***	.77***	.45***	.43***	-				
	BAS	.27***	.38***	.80***	.41***	.49***	-			
	EMWSS	.64***	.38***	.22**	.78***	.41***	.30***	-		
W3	SSPS	.39***	.73***	.46***	.40***	.94***	.52***	.42***	-	
	BAS	.23***	.42***	.73***	.35***	.52***	.92***	.39***	.56***	-

Cross-lagged panel model – The impact of social safeness on body appreciation

The cross-lagged panel model (Figure 1) tested the mediational effect of social safeness (SSPS) on the association between early memories of warmth and safeness (EMWSS) at baseline and body appreciation (BAS) 12 months later. The model presented adequate model fit indices: $\chi^2 = 44.385$; $df = 16$, $\chi^2/d.f. = 2.774$, $p < 0.001$; CFI = .99 NFI = .98; TLI = .97, SRMR = .07, and its effects represented the expected directions (Figure 1).

EMWSS at wave 1 showed a significant direct effect on SSPS at wave 2 ($\beta = .147$; $b_{EMWSS} = .141$; $SE_b = .040$; $Z = 3.504$; $p < .001$), and in turn SSPS at wave 2 had a direct effect on BAS at wave 3 ($\beta = .084$; $b_{SSPS} = .008$; $SE_b = .003$; $Z = 3.003$; $p = .003$). Furthermore, EMWSS at wave 1 presented a specific indirect effect on BAS at wave 3 through the mechanisms of SSPS, which mediated this relationship ($\beta = .012$; 95% CI = .000 to .028; $p = .039$).

Two direct effects were not statistically significant: EMWSS at wave 2 on SSPS at wave 3 ($b_{EMWSS} = .002$; $SE_b = .023$; $Z = .105$; $p = .916$), and SSPS at wave 1 on BAS at wave 2 ($b_{SSPS} = .002$; $SE_b = .004$; $Z = .402$; $p = .688$).

Additionally, the levels of each variable at baseline (W1) predicted the levels of said variable at wave 3, through the indirect effect of its values on wave 2. In this way, EMWSS at wave 1 presented an indirect effect of 0.54 (95% CI = .371 to .718; $p < .001$) on EMWSS at wave 3, through the mediator effect of EMWSS at wave 2. Similarly, SSPS at wave 1 indirectly impacted on SSPS's levels 12 months later (wave 3) with an indirect of .66 (95% CI = .573 to .757; $p < .001$) that was mediated by this SSPS' values at wave 2. Finally, BAS at baseline impacted on BAS 12 months later, with an indirect effect of .69 (95% CI = .599 to .773; $p < .001$) mediated by BAS' levels at wave 2.

The total model accounted for 83% of body appreciation's variance at wave 3. Data regarding the model's direct effects are presented in Figure 1.

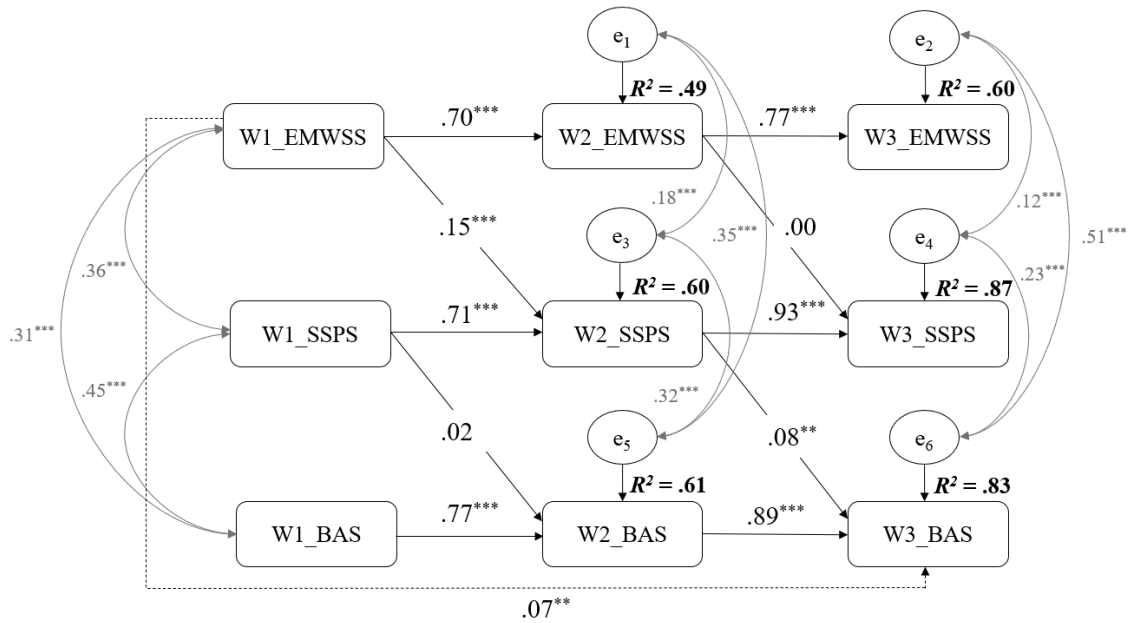


Figure 1. Cross-lagged panel model of early memories of warmth and safeness (EMWSS), social safeness (SSPS) and body appreciation (BAS) at waves 1 (W1), 2 (W2) and 3 (W3).

Note. Standardized path coefficients among variables are presented.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Discussion

Positive body image has been found to be associated with indicators of well-being and adaptive behaviour among adolescents, and so the study of its correlates and predictors has been fostered in the recent past (e.g., Cash, 2004). Within this context, the present study sought to longitudinally confirm a previously found association (e.g., Marta-Simões & Ferreira, 2020a, 2020b) between the recollection of positive affect in early rearing experiences, current experience of social safeness and body appreciation among teenage girls.

Firstly, results of descriptive and ANOVA analyses confirmed the hypothesis that, along adolescence, there seems to be a tendency for the indicators of adjustment and well-being to lower their scores. Specifically, participants in the present study presented statistically significant

lower scores in the wave 2, comparing to wave 1 (with 6 months apart); and in the wave 3, comparing to the wave 2, in their responses to the measures of early memories of warmth and safeness, social safeness and pleasure and body appreciation. This result is congruent with the literature that indicates that adolescence comprises several challenges, as well as conflict and defeat (e.g., Hall, 2015), that reflect on levels of well-being and quality of life, which have the tendency to lower during adolescence (e.g., Viejo et al., 2018). Considering body appreciation scores there seems to be a tendency, over time, for teenage girls to show less attitudes of appreciation, respect, and protection in relation to their bodily characteristics. This finding may be understood in light of teenage girls' higher susceptibility to sociocultural pressures to be thin, perfectionism, and low self-esteem (Paxton, 2003), and the association of these with a very high incidence of body image dissatisfaction (e.g., Ganesan et al., 2018).

Correlation analysis' results were expected, with longitudinal relationships among all variables under study with strong magnitudes, suggesting the stability of relationships between the variables over time. Most importantly, correlations between both early memories of warmth and safeness and social safeness at baseline with body appreciation (BAS) 6 months (W2) and 12 months (W3) later were significant and positive. These results further support cross-sectional findings on the associations between recollecting memories of affection and protection from close ones in early relationships, and current feelings of warmth, belonging and safeness and female adolescents' attitudes of appreciation and protection over one's unique bodily characteristics (Marta-Simões & Ferreira, 2020a, 2020b).

The main aim of the present study was to further support previous evidence on the mediating role of social safeness in the relationship between early memories of warmth and safeness and body appreciation. To test this hypothesis, a crossed-lagged panel model was analysed and the first effect to be explored was the direct effect of the recollection of early memories of safeness and warmth on feelings social safeness, 6 months later, which was revealed to be significant and positive. This result is aligned with previous literature stating the crucial role

of experiencing affection and safeness in early rearing relationships for the development of secure attachment (Tizard 2009), with positive effects on long-term interpersonal relationships and display of adaptive emotional regulation mechanisms (Baldwin and Dandeneau 2005; Depue and Morrone-Strupinsky 2005). Secondly, the direct effect of social safeness at wave 2 on body appreciation at wave 3 was analysed and was revealed to be significant and positive. This finding supports the idea that being embedded in a warming and inviting relational ambience, where one feels a sense of support, belonging and affection, associates with attitudes of appreciation, affection, and protection over one's bodily characteristics. Although cross-sectional studies had already suggested the association between feeling accepted by others (i.e., unconditional acceptance by others and social safeness) and positive body image indicators, both in adult samples (Oliveira et al., 2017; Wood-Barcalow et al., 2010) and adolescent samples (Marta-Simões et al., 2020), the longitudinal analysis of this association provides further support. One possible explanation for present results lies on the Evolutionary Psychology perspective (e.g., Gilbert, 2005) on social safeness. Specifically, the absence of the experience of one's social world as safe, warmth and soothing associates with the perception of a lower social rank position, with negative consequences on self-perception (i.e., feelings of inferiority and shame). Also, inferiority and shame are believed to give rise to defensive and concealment strategies which make the individual more vulnerable to psychopathological symptoms, and, in females, these strategies are often centred around the body image dimension (e.g., Gilbert, 2002). Considering these data and the present findings, it seems that feelings of social safeness constitute an environment in which teenage girls do not feel that their rank position is at risk, and this sense of security seems to be extended to the way they feel about their body characteristics, which are not seen as threatening or shaming. While feeling socially secure, female adolescents seem to have the opportunity to feel good about her bodies and to be able to protect them against the malign social ideals of beauty, and to appreciate the unique characteristics of their body image. Finally, results showed that the indirect effect of early memories of warmth and safeness at wave 1 on body appreciation

levels at wave 3, through social safeness at wave 2, was statistically significant. This finding further supports that, in female adolescents, social safeness acts a mediator of the effect of early memories of warmth and safeness on body appreciation attitudes, i.e., that being able to recollect positive emotional memories with close others associated with later feelings of social safeness which, in turn, associated with later display of body appreciative attitudes. This finding thus highlights the importance of both early and current positive social experiences for adolescents' body image perception.

When considering present findings some limitations should be acknowledged. Although the current study included a diverse sample of Portuguese girls and it seems that there is homogeneity regarding the distribution in rural and urban areas, recruitment only took place in schools in the central region of Portugal, a region with a markedly higher socioeconomic level, compared to other regions. This limitation may restrict the generalizability of the results to the entire Portuguese adolescent population. Findings thus require confirmation in a broader sample of Portuguese adolescents, of all genders, and also of other nationalities. Also, the study used counterbalanced validated psychological measures, but it only relied in self-report measures which may imply bias. Upcoming studies thus should use other sources of information, such as assessment interviews. Finally, body image is a complex and multi-caused phenomenon, which justifies a future investment in the study of other mechanisms of emotion regulation and factors that may influence the positive body image of adolescents.

In conclusion, the present study seems to underline the importance of establishing warm and caring relationships with others for teenage girls, underlining its effect on the way they relate to their body and are able to be respecting and protective of its unique specificities. By pointing current feelings of social safeness as a mediator of the relationship between early emotional memories and body appreciation, the present study provides a potential aspect to targeted programs for female adolescents, that is the cultivation of affiliative skills, and of a sense of security and acceptance in interpersonal relationships. These are now thought to contribute

positively to teenage girls' positive body image, with important consequences on girls' well-being and adaptive behaviour.

Conflict of interest: All authors have no conflicts of interest to report.

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References

- Akin, A., & Akin, U. (2015). The mediating role of social safeness on the relationship between Facebook® use and life satisfaction. *Psychological reports, 117*(2), 341-353. <https://doi.org/10.2466/18.07.PR0.117c20z9>
- Alavi, K., Asghari Moghadam, M. A., Rahiminezhad, A., Farahani, H., & Modares Gharavi, M. (2016). Psychometric properties of social safeness and pleasure scale (SSPS). *Journal of fundamentals of mental health, 19*(1), 5-13.
- Avalos, L. C-. & Tylka, T. L. (2006). Exploring a model of intuitive eating with college women. *Journal of Counseling Psychology, 53*(4), 486–497. <https://doi.org/10.1037/0022-0167.53.4.486>

- Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The Body Appreciation Scale: Development and psychometric evaluation. *Body Image, 2*(3), 285–297. <https://doi.org/10.1016/j.bodyim.2005.06.002>
- Baceviciene, M., & Jankauskiene, R. (2020). Associations between body appreciation and disordered eating in a large sample of adolescents. *Nutrients, 12*(3), 752. <https://doi.org/10.3390/nu12030752>
- Benowitz-Fredericks, C. A., Garcia, K., Massey, M., Vasagar, B., & Borzekowski, D. L. (2012). Body image, eating disorders, and the relationship to adolescent media use. *Pediatric Clinics, 59*(3), 693-704. <https://doi.org/10.1016/j.pcl.2012.03.017>
- Borges, A., de Matos, M. G., & Diniz, J. A. (2013). Body image and subjective well-being in Portuguese adolescents. *The Spanish journal of psychology, 16*, E17. <https://doi.org/10.1017/sjp.2013.24>
- Cash, T. F. (2004). Body image: Past, present, and future. *Body Image, 1*(1), 1-5. [https://doi.org/10.1016/S1740-1445\(03\)00011-1](https://doi.org/10.1016/S1740-1445(03)00011-1)
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioural Sciences* (2nd Ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: questions and tips in the use of structural equation modeling. *Journal of abnormal psychology, 112*(4), 558–577. <https://doi.org/10.1037/0021-843X.112.4.558>
- Cunha, M., Xavier, A., Martinho, I., & Matos, M. (2014). Measuring positive emotional memories in adolescents: Psychometric properties and confirmatory factor analysis of the Early Memories of Warmth and Safeness Scale. *International Journal of Psychology and Psychological Therapy, 14*, 245-259.
- Ferreira, C., Oliveira, S., & Mendes, A. L. (2017). Kindness toward one's self and body: exploring mediational pathways between early memories and disordered eating. *The Spanish journal of psychology, 20*, 1-8. <https://doi.org/10.1017/sjp.2017.50>

- Ganesan, S., Ravishankar, S. L., & Ramalingam, S. (2018). Are body image issues affecting our adolescents? A cross-sectional study among college going adolescent girls. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, 43(Suppl 1), S42. https://doi.org/10.4103/ijcm.ijcm_62_18
- Gilbert, P. (2002). Body shame: A biopsychosocial conceptualisation and overview, with treatment implications. In P. Gilbert & J. Miles (Eds.), *Body Shame: conceptualisation, research and treatment* (pp. 3-54). London: Brunner.
- Gilbert, P. (2005). Social mentalities: a biopsychosocial and evolutionary reflection on social relationships. In M. Baldwin (Ed.), *Interpersonal cognition* (pp. 299–333). New York: Guilford.
- Gilbert, P., & Irons, C. (2008). Shame, self-criticism and self-compassion in adolescence. In N. B. Allen & L. B. Sheeber (Eds.), *Adolescent Emotional Development and the Emergence of Depressive Disorders* (pp. 195-214). Cambridge University Press.
- Gilbert, P., McEwan, K., Mitra, R., Richter, A., Franks, L., Mills, A., & Gale, C. (2009). An exploration of different types of positive affect in students and patients with bipolar disorder. *Clinical Neuropsychiatry*, 6(4), 135-14.
- Hall, G. S. (2015) *Adolescence: Its Psychology and Its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion, and Education* (Vol. 1). New York: D. Appleton and Company.
- Hartman-Munick, S. M., Gordon, A. R., & Guss, C. (2020). Adolescent body image: influencing factors and the clinician's role. *Current opinion in pediatrics*, 32(4), 455–460. <https://doi.org/10.1097/MOP.0000000000000910>
- Hair, J., Anderson, R., Tatham, R., & Black, W. (1998) *Multivariate data analysis* (5th Ed.). Prentice Hall, New Jersey.

- Hu, L. T., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives. *Structural Equation Modeling, 6*, 1-55.
<http://dx.doi.org/10.1080/10705519909540118>
- Irons, C. Gilbert, P., Baldwin, M. W., Baccus, J. R., & Palmer, M. (2006). Parental recall, attachment relating and self-attacking/self-reassurance: Their relationship with depression. *British Journal of Clinical Psychology, 45*, 297– 308. <https://doi.org/10.1348/014466505X68230>
- Kelly, A. C., & Dupasquier, J. (2016). Social safeness mediates the relationship between recalled parental warmth and the capacity for self-compassion and receiving compassion. *Personality and Individual Differences, 89*, 157-161.
<https://doi.org/10.1016/j.paid.2015.10.017>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd Ed.). Guilford Press.
- Lemoine, J. E., Konradsen, H., Lunde Jensen, A., Roland-Lévy, C., Ny, P., Khalaf, A., & Torres, S. (2018). Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body image, 26*, 1–9. <https://doi.org/10.1016/j.bodyim.2018.04.004>
- MacKinnon, D. P. (2008). Longitudinal mediation analysis. In D. P. MacKinnon (Ed.), *Introduction to statistical mediation analysis* (pp. 193-236). New York: Lawrence Erlbaum.
- Marta-Simões, J., & Ferreira, C. (2020a). Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 25*(2), 399-406.
<https://doi.org/10.1007/s40519-018-0612-0>
- Marta-Simões, J., & Ferreira, C. (2020b). The soothing-affiliation system and body appreciation: recollected and present affect. *Women & health, 60*(5), 547-558.
- Marta-Simoes, J., Ferreira, C., & Mendes, A. L. (2016). Self-compassion: An adaptive link between early memories and women's quality of life. *Journal of Health Psychology*.
<https://doi.org/10.1177/1359105316656771>

- Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2020). Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents' well-being. *Journal of Health Psychology*. Advance online publication. <https://doi.org/10.1177/1359105320953463>
- Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2021). Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*. Advance online publication. <https://doi.org/10.1007/s40519-021-01274-6>
- Miguel, R. R., Sousa, R., Brazão, N., Rijo, D., Castilho, P., & Gilbert, P. (2019). *Psychometric properties and measurement invariance of the Social Safeness and Pleasure Scale in adolescent samples*. Manuscript in preparation.
- Mishra, P., Singh, U., Pandey, C. M., Mishra, P., & Pandey, G. (2019). Application of student's t-test, analysis of variance, and covariance. *Annals of cardiac anaesthesia*, 22(4), 407–411. https://doi.org/10.4103/aca.ACA_94_19
- Oliveira, S., Ferreira, C., & Mendes, A. L. (2016). Early memories of warmth and safeness and eating psychopathology: The mediating role of social safeness and body appreciation. *Psychologica*, 59(2), 45-60. https://doi.org/10.14195/1647-8606_59-2_3
- Paxton, S. J. (2003). *Evidence, Understanding and Policy: A Perspective from Psychology – Prevention, Early Intervention and Treatment of Body Image Problems*. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiBv7_i8pz0AhWEYMAKHW1_B_gQFnoECAyQAQ&url=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fgovernment%2Fuploads%2Fsystem%2Fuploads%2Fattachment_data%2Ffile%2F245485%2FSusan_Paxton_-_Body_Image_Seminar__3_.docx&usg=AOvVaw2xxmLvQitUGPb8-xK9CMXr
- Petroski, E. L., Pelegrini, A., & Glaner, M. F. (2012). Motivos e prevalência de insatisfação com a imagem corporal em adolescentes [Reasons and prevalence of body image dissatisfaction

- in adolescents]. *Ciência & Saúde Coletiva*, 17(4), 1071–1077.
<https://doi.org/10.1590/s1413-81232012000400028>
- Richter, A., Gilbert, P., & McEwan, K. (2009). Development of an early memories of warmth and safeness scale and its relationship to psychopathology. *Psychology and Psychotherapy: Theory, Research and Practice*, 82(2), 171–184.
<https://doi.org/10.1348/147608308X395213>
- Selig, J. P., & Preacher, K. J. (2009). Mediation models for longitudinal data in developmental research. *Research in Human Development*, 6(2-3), 144–64.
<https://doi.org/10.1080/15427600902911247>
- Tylka, T. L. (2018). Overview of the field of positive body image. In E.A. Daniels, M.M. Gillen, C.H. Markey (Eds.), *Body positive: Understanding and improving body image in science and practice* (pp. 6-33). Cambridge University Press.
<https://doi.org/10.1017/9781108297653.002>
- Tylka, T. L., & Wood-Barcalow, N. L. (2015). The body appreciation scale-2: Item refinement and psychometric evaluation. *Body Image*, 12(1), 53–67.
<https://doi.org/10.1016/j.bodyim.2014.09.006>
- Viejo, C., Gómez-López, M., & Ortega-Ruiz, R. (2018). Adolescents' psychological well-being: A multidimensional measure. *International Journal of Environmental Research and Public Health*, 15(10), 2325. <https://doi.org/10.3390/ijerph15102325>
- Voelker, D. K., Reel, J. J., & Greenleaf, C. (2015). Weight status and body image perceptions in adolescents: current perspectives. *Adolescent health, medicine and therapeutics*, 6, 149–158. <https://doi.org/10.2147/AHMT.S68344>
- Wertheim, E. H., & Paxton, S. J. (2011). Body image development in adolescent girls. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 76–84). The Guilford Press.

Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). “But I Like My Body”: positive body image characteristics and a holistic model for young-adult women. *Body Image*, 7, 106–116. <https://doi.org/10.1016/j.bodyim.2010.01.001>

2. The link between body appreciation and indicators of
disordered eating and perceived quality of life

Empirical studies IV, V, VI and VII

STUDY IV

Self-to-others and self-to-self relationships: Paths to understanding the valence of body image and eating attitudes in emerging adult women

Marta-Simões, J., & Ferreira, C. (2020). Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and weight disorders: EWD*, 25(2), 399–406. <https://doi.org/10.1007/s40519-018-0612-0>

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Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women

Joana Marta-Simões^a, and Cláudia Ferreira^a

^a CINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

Abstract

Purpose: Interpersonal and intrapersonal factors contributing to body appreciation in emerging adult women remain poorly explored. Thus, the present study aimed to test the impact of early memories of warmth and safeness with peers, self-compassion, and social safeness, in body appreciation and in disordered eating attitudes and behaviours.

Methods: A total of 387 women aged between 18 and 25 completed a set of self-report questionnaires. Data were analysed through descriptive and correlation statistics, and the suitability of a theoretical model was explored via path analysis. Self-report instruments assessed participants' weight and height, early memories of warmth and safeness with peers, self-compassion, social safeness, body appreciation, as well as disordered eating.

Results: Early memories of warmth and safeness with peers associated with higher self-compassion and feelings of social safeness, which were both positively linked to body appreciation. Body appreciation associated with a lower display of disordered eating.

Conclusion: It seems that childhood and adolescent experiences may have an important influence on the development of self-to-self and self-to-others secure relationships, with consequences on the way women behave and relate with their unique body characteristics. The pertinence of

developing self-compassion and affiliative skills to promote positive body image among females is suggested, as well as of applying compassion-based strategies when clinically approaching symptoms of eating disorders.

Level of evidence: Cross-sectional descriptive study, Level V.

Keywords: Early memories with peers; eating psychopathology; body appreciation; self-compassion; social safeness; women's mental health.

Introduction

Background

In the last few years, increasing attention has been paid to the study of positive body image, a multifaceted construct defined as the detention of appreciative, accepting and protective attitudes and behaviours with respect to one's own body characteristics [1, 2]. This shift in body image literature, to a greater focus on factors that support psychological health and well-being, was moved by the need to increase knowledge about predictors, consequences, and methods to promote positive body image, which hopefully may result in a more effective prevention of body image-related disturbances [3]. Body appreciation is one of the most explored key components of positive body image, and it is defined by Avalos and colleagues [1] as the deliberate (a) acceptance of one's body, including the recognition of flaws and imperfections, (b) respect and care for one's body's needs, and (c) rejection of unrealistic socially-prescribed beauty standards. Recent findings on positive body image have documented that body appreciation is connected to both interpersonal factors, such as caregiver attitudes, adult attachment anxiety and avoidance, and peer criticism; and intrapersonal abilities, some of which are self-compassion, perfectionism, and motivation for physical activity [4, 5].

The female body constitutes an elementary object of social evaluation [6], thus, it seems important to analyse social context factors when studying body appreciation. On this subject, a recent study [7] corroborated the social importance of appearance for emerging adult women and found that these women are more likely than men to feel that being more attractive is linked with higher success, to perceive media and peer messages about the pertinence of being thin, and to receive more negative messages about appearance. Indeed, literature suggests that, in women, body dissatisfaction may constitute a warning signal of social insecurity, and that drive for thinness and associated dieting behaviours may emerge as strategies to achieve a favourable social rank position (that is the perception that one is accepted and valued within a certain social group [6]). In this line, several interpersonal factors have been linked to body dissatisfaction as well as with its consequent body image-concealing behaviours. For instance, a recent study by Ferreira et al. [8] suggested that the effect of the absence of early warmth and safeness experiences with close others is associated to disordered eating behaviours, via higher perfectionist self-presentation of body image. Although literature has not widely covered the role of early memories of peer relationships (i.e., friends and colleagues), its lack has been recently associated to symptoms of eating disorders, via an increased perception that one and others hold unfavourable opinions about the self [9]. Additionally, Vangeel et al. [10] conducted a longitudinal study which found that the internalization of appearance ideals in adolescence is linked to long-term self-objectification and body surveillance behaviours, that is still evident in the age group of emerging adults. Regarding positive body image, the role of others has been reviewed, but only regarding body image-specific influence from parents and peers. For instance, a study by Avalos and Tylka [11] revealed that, in young adult females, both general and body unconditional acceptance from others predicted body appreciation and intuitive eating [12]. Furthermore, Wood-Barcalow, Tylka, and Augustus-Horvath [13] found that positive body image among college women is highly promoted by messages of unconditional acceptance from significant others, namely family members, friends and partners.

Self-compassion, although proved to be a powerful antidote for negative body image, and for disordered eating behaviours [14], was only recently proposed as an important construct for the study of positive body image. In fact, fresh accounts have shown that self-compassion associates positively with body appreciation and with intuitive eating [15]. Moreover, data on self-compassion have also underlined its role as an enhancer of body appreciation in the presence of body image-related threats [16], and as a buffer of the harmful effect of general feelings of shame in body appreciation levels [17]. This ability to be mindfully kind to oneself in times of suffering, and to tolerate and understand pain and suffering as common and shared experiences [18] is embedded in an emotion regulation system defined as the safeness-soothing system [19, 20]. This system is triggered by signals of care and compassion from others, and thus has evolutionarily evolved to register social safeness and promote feelings of affiliation, safeness and connectedness [19, 20]. Social safeness, the experience of the social world as warm, calming and reassuring in response to caring behaviours from others [21] is, in fact, considered to be an effective protector against psychosocial suffering [22]. Recently, Kelly and Dupasquier [23] reported that social safeness mediates the relationship between memories of parental warmth and the capacity for self-compassion.

Aims

Taking together the extant information on the matters of recalled peer warmth, self-compassion and social safeness, and also the need to explore roots and correlates of the facets of positive body image, the present study aims at analysing whether, in Portuguese emerging adult women, the capacity of recalling early memories of warmth and safeness with peers associates with higher self-compassion abilities and with higher sense of social safeness. Moreover, the main aim of the study is to explore how these variables associate with the detention of appreciative and protective attitudes toward one's body characteristics, as well as with the display of symptoms of eating disorders. It is expected that the recall of early memories

of warmth and safeness with peers associates with higher self-compassion and social safeness, and that these three variables predict higher body appreciation. In addition, it is hypothesized that the interaction of all these variables may predict a lower display of disordered eating. In the studied model, the effect of Body Mass Index (BMI) was controlled for, given that it is expected that it holds a significant impact on variables directly associated to body image, i.e., body appreciation and disordered eating.

Method

Participants and procedure

The Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra, as well as boards of the institutions involved, were fully informed about the purposes of the study, and assured the absolute compliance with ethical requirements, providing their approval. Aims of the study were presented to potential participants (women from several distinct organizations such as higher education institutions, private companies, retail services), who were invited to volunteer as participants. A total of 738 women agreed to participate in the study and were familiarized with the nature and rationale of the study, as well as the voluntary character of their participation, and data's confidentiality. Women who agreed to take part in the study provided their written informed consent, and only then were given a set of self-report questionnaires to be responded to during a break (authorized by the institution's boards) of approximately 15 min. According to the main purpose of the study, data-cleaning procedures were conducted to exclude participants who were younger than 18 and older than 25 years old (to achieve a sample only composed of emerging adult women), and the cases in which 15% or more of the responses were missing from a questionnaire, which resulted in a final sample of 387 women.

Women, in the final sample, were aged between 18 and 25 years old ($M=21.64$; $SD=1.70$). Mean BMI was of 21.58 ($SD=3.26$). BMI values of the sample were in accordance with those typically found in the female Portuguese population of the same age group [24], i.e., 12.9% ($n=50$) were underweight, 74.2% ($n=287$) presented normal BMI, 10.8% ($n=42$) were overweight, and 2,1% ($n=8$) fell within the obese category, according to WHO [25].

Measures

BMI was calculated by dividing participants' reported body weight by the square of their self-reported height (kg/m^2).

Early Memories of Warmth and Safeness Scale—Peers Version (EMWSS_Peers; [26]) assesses positive memories of early caring relationships with peers (i.e., with friends and colleagues). It comprises 12 items (such as “I felt happy when I was with my friends”, and “I could easily be soothed by my friends when I was unhappy”) rated on a Likert-type scale, ranging from 0 (“No, never”) to 4 (“Yes, most of the time”). Participants are asked to rate the extent to which each statement reflects their childhood experiences. The original study of the EMWSS_Peers reported its excellent internal consistency ($\alpha=0.97$) and construct, concurrent, and divergent validities.

Self-Compassion Scale (SCS; [27, 28]) is a 26-item questionnaire which assesses self-compassion, as individuals' attitudes and actions towards themselves in difficult times. It is composed of six subscales: three positive (self-kindness, common humanity, and mindfulness) and three negative (self-judgment, isolation, and over-identification). The items are rated on a Likert-type scale, ranging from 1 (“Almost never”) to 5 (“Almost always”). According to the purposes of the present study, only the composite measure of the three positive subscales of the SCS was used and defined as “self-compassion” (SCS_SC). This dimension comprises items such as “When things are going badly for me, I see the difficulties as part of life that everyone goes through”, “I try to be loving towards myself when I'm feeling emotional pain” and “When something painful happens I

try to take a balanced view of the situation”. The “self-compassion” dimension is proved as a valid measure of self-compassion abilities (with a reported Cronbach’s alpha value of 0.91; [26]).

Social Safeness and Pleasure Scale (SSPS; [21]) aims at evaluating positive emotional experiences (e.g., belonging, warmth from others) which occur within a soothing social environment, that is social safeness. The SSPS is composed of 11 items (e.g., “I feel a sense of warmth in my relationships with people”, “I feel easily soothed by those around me”) to be rated on a 5-point scale from 0 (“Almost never”) to 4 (“Almost all the time”). The SSPS has been proved as a psychometrically reliable measure ($\alpha=0.92$).

Body Appreciation Scale-2 (BAS; [29, 30]) evaluates a positive body image-related construct—body appreciation—defined as a posture of acceptance and protection toward one’s own body’s features, despite the assumption of a certain degree of body dissatisfaction. It comprises 10 items (e.g., “I respect my body”, and “I feel that my body has at least some good qualities”) to be rated for frequency of occurrence (Likert-style scale, ranging between 1—“Never” and 5—“Always”). The BAS has proved to be a psychometrically sound measure ($\alpha=0.97$, original study; $\alpha=0.95$, Portuguese adaptation study).

Eating Disorder Examination Questionnaire (EDE-Q; [31, 32]) is a 36-item (such as “Have you tried to exclude from your diet any foods that you like to influence your shape or weight (whether or not you have succeeded)?”, and “Have you felt fat?”) instrument designed to evaluate the display of disordered eating attitudes and behaviours. The EDE-Q comprises four subscales: restraint, eating concern, shape concern, and weight concern. Respondents are asked to rate the items for frequency of occurrence or for severity of key eating psychopathology symptoms, within a 28-day time frame. In the present study, only the global EDE-Q score was used, which consists of the mean value of scores for all four subscales. Previous studies have shown EDE-Q’s good psychometric properties ($\alpha=0.94$).

Analytic strategy

To explore the characteristics of the sample in terms of the variables in study, descriptive statistics (e.g., means and standard deviations) were used. Also, to analyse the associations between early positive memories with peers (EMWSS_Peers scale), BMI, self-compassion (SCS_SC composite measure), social safeness (SSPS scale), body appreciation (BAS scale), and disordered eating (EDE-Q scale), product-moment Pearson correlation analyses were conducted. These analyses were computed by resorting to the software IBM SPSS (v.22; SPSS Inc., Chicago, IL, USA).

A series of path analyses inspecting assumed structural relations (direct and indirect effects) between the variables were presented in the proposed theoretical model (Fig. 1) and were conducted using the software AMOS (v.22, SPSS Inc., Chicago, IL, USA). This theoretical model was designed to test if early memories of warmth and safeness with peers and BMI (exogenous variables) would associate with disordered eating (endogenous variable) when mediated by self-compassion, social safeness and body appreciation (endogenous mediator variables).

The estimation method used in these analyses was the maximum likelihood, with 95% confidence interval, to test for the significance of the regression coefficients, and to compute fit statistics. Significance of direct, indirect and total effects was measured by Chi-square tests. The Bootstrap resampling method was used to test the significance of the mediational paths, using 5000 Bootstrap samples and 95% confidence intervals [33]. Several goodness-of-fit measures were used to assess the adequacy of the overall model: Chi-Square (χ^2), Normed Chi-Square (χ^2/df), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), and Root-Mean Square Error of Approximation (RMSEA) with 95% confidence interval.

Results

Descriptive statistics and correlations

Means and standard deviations are presented in Table 1. Correlation analyses' results (Table 1) showed negative correlations of BMI with early positive emotional memories with peers (albeit weak) and with body appreciation, and a positive moderate correlation with eating psychopathology. Early positive emotional memories with peers correlated positively with self-compassion, social safeness (with strong magnitude) and body appreciation, and negatively and weakly with eating psychopathology. Self-compassion, social safeness and body appreciation presented positive associations between each other, and negative correlations with eating psychopathology.

Table 1. Cronbach's alphas (α), means (M), standard deviations (SD), and intercorrelation scores on self-report measures ($N = 416$).

	α	M	SD	1	2	3	4	5
1. BMI	-	21.64	3.27	-				
2. EMWSS_Peers	.98	34.12	11.06	-.11*	-			
3. SCS_SC	.90	3.11	.64	-.06	.41***	-		
4. SSPS	.94	41.48	7.89	-.09	.54***	.44***	-	
5. BAS	.95	3.70	.82	-.31***	.34***	.46***	.47***	-
6. EDE-Q	.89	1.19	1.09	.42***	-.23**	-.25***	-.29***	-.69***

Note. BMI = Body Mass Index; EMWSS_Peers (assessing early memories of warmth and safeness with peers); SCS_SC (assessing self-compassion); SSPS (assessing social safeness); BAS = (assessing body appreciation); EDE-Q (assessing disordered eating).

* $p < .05$; *** $p < .001$.

Path analysis

The proposed theoretical model was tested through a fully saturated initial model which consisted of 27 parameters. This model accounted for 15% of self-compassion, 31% of social safeness, 37% of body appreciation, and 51% of eating psychopathology's variances. Nonetheless some of the paths were not significant, and thus were sequentially eliminated: (a) the direct effect of early positive memories with peers on eating psychopathology ($b_{EMWSS-Peers}=0.00$; $SE_b=0.00$; $Z=0.18$; $p=0.859$); (b) the direct effect of social safeness on eating psychopathology ($b_{SSPS}=0.00$; $SE_b=0.01$; $Z=-0.14$; $p=0.888$); (c) the direct effect of early positive memories with peers on body appreciation ($b_{EMWSS-Peers}=0.00$; $SE_b=0.00$; $Z=0.52$; $p=0.603$); (d) the direct effect BMI on self-compassion ($b_{BMI}=-0.01$; $SE_b=0.01$; $Z=-0.60$; $p=0.547$), and (e) on social safeness ($b_{BMI}=-0.05$; $SE_b=0.10$; $Z=-0.48$; $p=0.631$); and, finally, (f) the direct effect of self-compassion on eating psychopathology ($b_{SCS_SC}=0.09$; $SE_b=0.07$; $Z=1.27$; $p=0.205$). Then, the model was readjusted, and effects' sizes were recalculated.

The readjusted model (Fig. 1) explained 17% of self-compassion and 29% and social safeness' variances and accounted for 36% of the variance of body appreciation, and for 51% of eating psychopathology's variance. All path coefficients showed to be statistically significant ($p<0.050$), and model fit indices revealed an excellent fit to the empirical data [$\chi^2_{(6)}=2.52$, $p=0.867$, $CMIN/df=0.41$; $TLI=1.01$; $CFI=1.00$; $RMSEA=0.00$, $p=0.984$, 95% CI=0.00 to 0.03]. Early memories of warmth and safeness with peers (EMWSS_Peers) showed positive direct effects of 0.41 on self-compassion (SCS_SC) ($b_{EMWSS-Peers}=0.02$; $SE_b=0.00$; $Z=8.30$; $p<0.001$), and of 0.54 on social safeness (SSPS) ($b_{EMWSS-Peers}=0.40$; $SE_b=0.03$; $Z=13.15$; $p<0.001$). The effect of early memories of warmth and safeness with peers on body appreciation (BAS) was significant only at an indirect level, i.e., when mediated by self-compassion and social safeness ($\beta=2.93$; 95% CI=0.23–0.37). The effect of early memories of warmth and safeness with peers on disordered eating (EDE-Q) was also indirect, carried by the effects of self-compassion, social safeness, and body appreciation ($\beta=-0.18$; 95% CI=-0.23 to -0.13). Regarding self-compassion (SCS_SC),

results showed a positive direct effect of 0.31 on body appreciation ($b_{SCS_SC}=0.38$; $SE_b=0.06$; $Z=6.57$; $p<0.001$), and an indirect effect on disordered eating, mediated by body appreciation ($\beta=-0.18$; 95% CI=-0.25 to -0.12). Social safeness (SSPS) had a positive direct effect of 0.31 on body appreciation ($b_{SSPS}=0.03$; $SE_b=0.01$; $Z=6.90$; $p<0.001$), and an indirect effect on disordered eating, mediated by body appreciation ($\beta=-0.19$; 95% CI=-0.27 to -0.12). Body appreciation (BAS) was showed to have a direct negative effect on disordered eating ($\beta=-0.60$; $b_{BAS}=-0.81$; $SE_b=0.05$; $Z=-16.16$; $p<0.001$). Finally, BMI revealed a negative direct impact on body appreciation ($\beta=-0.26$; $b_{BMI}=-0.06$; $SE_b=0.01$; $Z=-6.30$; $p<0.001$), and a total effect of 0.40 on disordered eating which was revealed as being both direct ($\beta=0.24$; $b_{BMI}=0.08$; $SE_b=0.01$; $Z=6.36$; $p<0.001$), and indirect, mediated by body appreciation ($\beta=0.16$; 95% CI=0.11–0.21).

In summary, the accessibility to early memories of warmth and safeness with peers associates with an attitude of acceptance and care toward one's own body, via a higher ability to be compassionate to oneself in times of suffering, and a safe and enjoyable experience of the social context (social safeness). Moreover, body appreciation associates with a lower expression of disordered eating attitudes and behaviours. Regarding BMI, this variable was showed to be exclusively associated with body appreciation (inversely), and with disordered eating (directly), and not with self-compassion or social safeness.

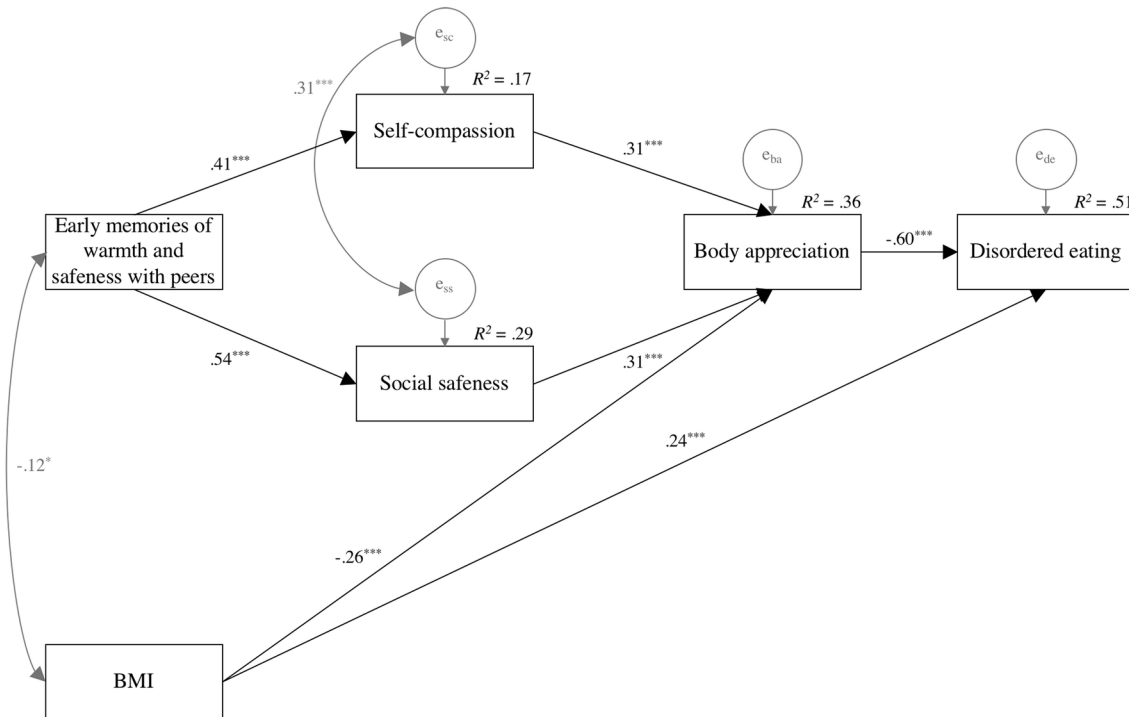


Figure 1. Final path model. Standardized path coefficients among variables are presented.

* $p < 0.05$; *** $p < 0.001$

Discussion

The rationale for the present work was based on widely extant research data on constructs which have been found to be important in the understanding of body image, namely peer relationships, self-compassion and social safeness. The present study aimed at analysing the suitability of a theoretical model which hypothesized that the recall of early memories of warmth and safeness with peers would associate with higher levels of self-compassion and feelings of safeness and connectedness, and thus associate with higher body appreciation and lower disordered eating attitudes and behaviours.

Early memories of warmth and safeness, self-compassion and social safeness are all reported in literature as being inversely associated with body dissatisfaction and disordered eating, while BMI has been shown to be positively associated with these outcomes [6, 8]. Thus, it would be expected that these same variables would present opposite direction associations with

body appreciation, given that this facet of positive body image implies an appreciative, protective and overall healthy relationship with body image and function [2]. Correlation analysis' results were as expected: body appreciation presented positive correlations with the recall of early memories of warmth and safeness with peers, self-compassion and social safeness, and negative associations with BMI and disordered eating.

To better clarify these relationships, a theoretical model was tested via path analyses. These analyses suggested that, in women, the recall of early memories of warmth and safeness with peers is not directly associated with higher body appreciation, in fact, its significant and positive effect is carried by self-compassion and social safeness. Specifically, self-compassion and social safeness appeared as significant mediators of the relationship between recalling early memories of warmth and safeness with peers and body appreciation. Firstly, the finding that early memories of warmth and safeness with peers significantly predicts both self-compassion and social safeness may be understood under the light of the Tripartite Model of Affect Regulation [19, 20], which argues that the safeness-soothing system grows in parallel with the attachment system, i.e., positive social interactions stimulate this system to emit signals of connectedness, trust and safeness [19, 20]. By stimulating this important low-arousal emotion regulation system, early affectionate and trusting relationships with peers may contribute to the creation of an optimal emotional environment for the development of self-compassionate abilities to deal with failure and suffering, and to the experience of the social world as pleasurable and trustworthy. Our results showed a positive relationship of self-compassion and social safeness with body appreciation. These results confirm and extend previous literature. Firstly, the link between self-compassion and body appreciation has been previously reported in literature [16, 17]. Regarding the association of social safeness and body appreciation, since body dissatisfaction may be considered a symptom of social insecurity in women [6], it was predictable that, in females, a safe social environment would contribute to an appreciative, protective and balanced experience of one's own body characteristics. The overall model accounted for the explanation of the variance

of disordered body and eating attitudes and behaviours (such as diet and over-concern about body image). Specifically, a higher recall of early memories of warmth and safeness with peers associated with higher self-compassion and social safeness, and higher body appreciation, which, in turn, associates with a lower display of disordered eating. Finally, BMI only appeared to have significant effects on body image-related variables, i.e., body appreciation and disordered eating. The relationship between BMI and disordered eating (as measured by EDE-Q) was revealed as being almost equally strong at a direct and indirect level, that is when mediated by body appreciation. This result may suggest that, beyond the impact of an objective measure of body weight vs height, it is the valence of the affective relationship established with one's body characteristics, despite some level of dissatisfaction, that can make women vulnerable to engage in unhealthy body image-concealing behaviours.

The results of the present study, although promising, should be understood while considering some limitations. Prospective studies could be conducted to validate the nature and direction of the present findings, since cross-sectional designs compromise causal inferences. Regarding the sample used in this study (female emerging adult sample), although deliberate, due to the fact that female body image concerns significantly differ from men's [34] and is continuously affected by messages from significant others who compare them to media-prescribed appearance standards [1], upcoming studies should explore the generalization of the tested model to other samples, such as male samples and other age groups. Finally, the use of self-report measures may compromise the generalization of the data, and so future studies could benefit from the use of other research methods, namely structured interviews.

In summary, the present work seems to underline the importance of childhood and adolescent experiences to the development of self-to-self and self-to-others secure relationships, with consequences on the way women behave and relate with their unique body characteristics. Specifically, early relationships with peers characterized by a sense of warmth and safeness seem to enhance self-compassionate abilities and the capability of feeling safe around and connected

to others. In consequence, both intrapersonal and interpersonal factors (self-compassion and social safeness), associate with appreciative and protective attitudes toward body image, which, in turn, associates with a lower tendency to display disordered eating behaviours and attitudes. These results seem to hold important consequences to the development of intervention programs among females, in which the cultivation of self-compassion and the development of affiliative skills may contribute to a more kind and understanding evaluation of their body characteristics and of a health-focused relationship with one's body. Moreover, when clinically approaching body image and eating-related disturbances, the once again underlined association between self-compassion and body appreciation seems to support the pertinence of applying strategies of Compassion Focused Therapy.

Compliance with Ethical Standards

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Conflict of Interest: Authors Joana Marta-Simões and Cláudia Ferreira declare that they have no conflict of interest.

Ethical approval: All procedures performed in studies involving Human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

References

1. Avalos LC, Tylka TL, Wood-Barcalow N (2005) The Body Appreciation Scale: Development and psychometric evaluation. *Body Image* 2:285–297. <https://doi.org/10.1016/j.bodyim.2005.06.002>

2. Tylka TL, Wood-Barcalow NL (2015) What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image* 14:118-129. <https://doi.org/10.1016/j.bodyim.2015.04.001>
3. Halliwell E (2015) Future directions for positive body image research. *Body Image* 14:177–189. <https://doi.org/10.1016/j.bodyim.2015.03.003>
4. Frisén A, Holmqvist K (2010) What characterizes early adolescents with a positive body image? A qualitative investigation of Swedish girls and boys. *Body Image* 7(3):205–212. <https://doi.org/10.1016/j.bodyim.2010.04.001>
5. Iannantuono AC, Tylka TL (2012) Interpersonal and intrapersonal links to body appreciation in college women: An exploratory model. *Body Image* 9(2):227-235. <https://doi.org/10.1016/j.bodyim.2012.01.004>
6. Pinto-Gouveia J, Ferreira C, Duarte C (2014) Thinness in the Pursuit for Social Safeness: An Integrative Model of Social Rank Mentality to Explain Eating Psychopathology. *Clin Psychol Psychother* 21(2):154–165. <https://doi.org/10.1002/cpp.1820>
7. Ferreira C, Marta-Simões J, Trindade IA (2016) Defensive Responses to Early Memories with Peers: A Possible Pathway to Disordered Eating. *Span J Psychol* 19:(E45). <https://doi.org/10.1017/sjp.2016.45>
8. Mendes AL, Marta-Simões J, Ferreira C (2017) How can the recall of early affiliative memories with peers influence on disordered eating behaviours? *Eat Weight Disord* 22(1):133-139. <https://doi.org/10.1007/s40519-016-0267-7>
9. Avalos LC, Tylka TL (2006) Exploring a Model of Intuitive Eating with College Women. *J Couns Psychol* 53(4):486–497. <https://doi.org/10.1037/0022-0167.53.4.486>
10. Tylka TL (2006). Development and psychometric evaluation of a measure of intuitive eating. *J Couns Psychol*, 53, 226–240

11. Wood-Barcalow NL, Tylka TL, Augustus-Horvath CL (2010) “But I Like My Body”: Positive body image characteristics and a holistic model for young-adult women. *Body Image* 7:106–116. <https://doi.org/10.1016/j.bodyim.2010.01.001>
12. Ferreira C, Pinto-Gouveia J, Duarte C (2013) Self-compassion in the face of shame and body image dissatisfaction: implications for eating disorders. *Eat Behav* 14(2):207-210. <https://doi.org/10.1016/j.eatbeh.2013.01.005>
13. Kelly AC, Stephen E (2016) A daily diary study of self-compassion, body image, and eating behaviour in female college students. *Body Image* 17:152-160. <https://doi.org/10.1016/j.bodyim.2016.03.006>.
14. Homan KJ, Tylka TL (2015) Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body Image* 15:1–7. <https://doi.org/10.1016/j.bodyim.2015.04.007>
15. Marta-Simões J, Ferreira C, Mendes AL (2016) Exploring the effect of external shame on body appreciation among Portuguese young adults: The role of self-compassion. *Eat Behav* 23:174-179. <https://doi.org/10.1016/j.eatbeh.2016.10.006>
16. Neff KD (2003a) Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self Identity* 2:85–102. <https://doi.org/10.1080/15298860309032>
17. Gilbert P (2005) *Compassion: Conceptualisations, Research and Use in Psychotherapy*. London, Routledge
18. Gilbert P (2009) *The compassionate mind: A new approach to life’s challenges*. London, Constable-Robinson
19. Gilbert P, McEwan K, Mitra R, Richter A, Franks L, Mills A, ... Gale C (2009) An exploration of different types of positive affect in students and patients with bipolar disorder. *Clin Neuropsychiatry* 6:135– 143

20. Kelly A, Zurodd DC, Leybman MJ, Gilbert P (2012) Social Safeness, Received Social Support, and Maladjustment: Testing a Tripartite Model of Affect Regulation. *Cognit Ther Res* 36(6):815–826. <https://doi.org/10.1007/s10608-011-9432-5>
21. Kelly AC, Dupasquier J (2016) Social safeness mediates the relationship between recalled parental warmth and the capacity for self-compassion and receiving compassion. *Pers Individ Dif* 89:157–161. <https://doi.org/10.1016/j.paid.2015.10.017>
22. Poínhos R, Franchini B, Afonso C, Correia F, Teixeira VH, Moreira P, ... de Almeida MDV (2009) Alimentação e estilos de vida da população portuguesa: metodologia e resultados preliminares. *Alimentação Humana* 15(3):43 – 61
23. WHO (1995) Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee. Technical Report Series No. 854. Geneva, World Health Organization
24. Ferreira C, Cunha M, Marta-Simões J, Duarte C, Matos M, Pinto-Gouveia J (2017) Development of a measure for the assessment of peer-related positive emotional memories. *Clin Psychol Psychother*. <https://doi.org/10.1111/papt.12146>
25. Neff KD (2003b) The development and validation of a scale to measure self-compassion. *Self Identity* 2(3):223-250. <https://doi.org/10.1080/15298860390209035>
26. Costa J, Marôco J, Pinto-Gouveia J, Ferreira C, Castilho P (2016). Validation of the Psychometric Properties of the Self-Compassion Scale. Testing the Factorial Validity and Factorial Invariance of the Measure among Borderline Personality Disorder, Anxiety Disorder, Eating Disorder and General Populations. *Clin Psychol Psychother* 23(5):460-468. <https://doi.org/10.1002/cpp.1974>
27. Pinto-Gouveia J, Matos M, Dinis A (2008) Portuguese version of the social safeness and pleasure scale. Unpublished manuscript. University of Coimbra
28. Tylka TL, Wood-Barcalow NL (2015) The Body Appreciation Scale-2: Item refinement and psychometric. *Body Image* 12:53–67. <https://doi.org/10.1016/j.bodyim.2014.09.006>.

29. Marta-Simões J, Mendes AL, Trindade IA, Oliveira S, Ferreira C (2016) Validation of the Body Appreciation Scale-2 for Portuguese women [abstract proceeding]. *BMC Health Serv Res* 16(Suppl. 3):P82, 92. <https://doi.org/10.1186/s12913-016-1423-5>
30. Fairburn CG, Beglin SJ (1994) Assessment of eating disorders: Interview of self-report questionnaire? *Int J Eat Disord* 16(4):363-370. [https://doi.org/10.1002/1098-108X\(199412\)](https://doi.org/10.1002/1098-108X(199412)16(4):363-370)
31. Machado PP, Martins C, Vaz AR, Conceição E, Bastos AP, Gonçalves S (2014) Eating disorder Examination questionnaire: psychometric properties and norms for the Portuguese population. *Eur Eat Disord Rev* 22(6):448-453. <https://doi.org/10.1002/erv.2318>
32. Kline RB (2011) *Principles and practice of structural equation modelling* (3rd ed.). New York, Guilford Press
33. Tylka TL, Bergeron D, Schwartz JP (2005) Development and psychometric evaluation of the Male Body Attitudes Scale (MBAS). *Body Image*, 2(2):161-175. <https://doi.org/10.1016/j.bodyim.2005.03.001>

S T U D Y V

Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating

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Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating.

Joana Marta-Simões^a, Tracy L. Tylka^b, and Cláudia Ferreira^a

^a CINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

^b Department of Psychology, The Ohio State University, Columbus and Marion Campuses, Columbus, Ohio, United States

Abstract

Purpose: Adolescence has been stated as a period in which body image and eating difficulties' have its greatest expression, especially in females. Nonetheless, protective factors, such as body appreciation and compassion, are not thoroughly studied in this developmental stage. The current study hypothesized that competences for self-compassion and receiving others' compassion associate positively with social safeness, and the three variables with body appreciation. Moreover, the association between body appreciation and disordered eating was analysed. A sample of Portuguese female adolescents was used.

Methods: 205 participants, aged between 12 and 18, completed a set of self-report measures in the school context. Data were explored via descriptive, correlational and path analysis.

Results: Path analysis indicated that self-compassion and receiving compassion from others associate positively with feelings of social safeness which, in turn, associate with higher body

appreciation. All the variables in study associated indirectly and negatively with disordered eating, and body appreciation presented a direct and negative association with disordered eating.

Conclusion: Findings of the current study may suggest the pertinence of developing programs for female adolescents that include the cultivation of compassionate and affiliative skills to promote positive body image and to prevent or intervene with disordered eating symptoms, with potential effects on overall well-being and mental health.

Level of evidence: Cross-sectional descriptive study, Level V.

Keywords: Adolescence; compassion; social safeness; positive body image; disordered eating.

Introduction

Adolescence is a stage marked by deep physiological, cognitive, psychological, and behavioural changes [1]. These are often accompanied setbacks and difficulties [2] which may explain the emergence of emotional difficulties in this phase (e.g., increased emotional reactivity, lower ability for emotion regulation, symptoms of stress and anxiety) [3,4,5] and specific disorders such as eating disorders [6]. Most of the negative factors that contribute for the development of an eating disorder during adolescence are reported to be higher in girls, comparing to boys [7], and eating disorders are indeed known to mainly affect adolescent girls [8, 9]. Considering this, adolescence appears to be an optimal period to develop and maintain healthy social and emotional habits, and promote supportive environments in the family, at school, and in the wider community [10]. This effort is essential to protect individuals from hostile experiences and risk factors that may have a detrimental impact in their health and well-being [10].

Regarding the emergence of eating disorders, many influences exist during the teen years, including changes in one's body shape, weight, and appearance [11]. Historically,

research on eating disorders has been focusing on the influence of negative body image [12], with several studies pointing body image dissatisfaction, drive for thinness, perceived social pressure to be thin, and family history of eating concerns to be its soundest predictors [13, 14].

Recently, an effort to change the polarity of research on body image and eating-related disorders has produced insights on how holding a positive body image associates with several positive and protective outcomes in adolescence. These include valuing body image differences, self-confidence, self-attunement and empowerment [15, 16], body functionality, and sports participation [17]. Moreover, body appreciation, a facet of positive body image, is known to predict a decrease in dieting in adolescent girls [18], and to be negatively correlated with body mass index, body dissatisfaction, and disordered eating [17]. Body appreciation defines as “holding favourable opinions of the body regardless of actual physical appearance, acceptance of the body despite incongruences with media appearance ideals, respect toward the body by attending to its needs and engaging in healthy behaviours, and protection of the body by rejecting unrealistic appearance ideals” [19]. Although the factors that contribute for body appreciation are not thoroughly explored, especially in adolescence, some studies have pointed its association with protective factors, namely, unconditional and body-related acceptance by others [20,21,22], and self-compassion [23,24,25,26]. Considering that positive body image may constitute an effective way to prevent body image and eating-related disorders, further research on factors that contribute to body appreciation in adolescence seems to be of particular importance [12].

Compassion has been successfully incorporated in therapeutic approaches to body and eating-related disorders with adults [27] and has also been suggested to be applied in adolescents with such difficulties [28]. Indeed, compassion lies on the opposite side of attitudes associated with negative body image, such as harsh judgement, striving and competition [29, 30]. It defines as “a sensitivity to suffering with a commitment to try to alleviate and prevent it”, and may flow in three distinct directions: compassion for others, compassion received from others, and self-compassion [30].

Self-compassion has been associated with body appreciation in samples of adult females [25, 26], although studies using adolescent samples and exploring other directions of compassion are absent. Indeed, compassion associates with many positive outcomes, such as psychological and interpersonal processes [30]. One of the foundations of its adaptive character lies on the fact that the ability to access compassion from self and others has proved to be a central skill to prevent and cope with difficulties and severe psychosocial struggles [30].

Compassion activates the safeness-soothing affect regulation system, a system that is stimulated by signs of care, protection, and affection, associating with social safeness by promoting feelings of affiliation, connectedness, and closeness [31, 32]. Social safeness is defined as the experience of positive feelings of pleasure, connectedness, and safeness within one's social world, and of feeling cared about and calmed by other people [33]. It is positively associated with a sense of warmth and security in social relationships and with the perception of compassion in other people [33]. Recent studies on positive psychology have reported that, in adults, it associates with body appreciation [25, 26]. Regarding negative correlations, social safeness associates with a lower tendency to perceive others as hypercritical and rejecting [33].

The present study aimed at testing a theoretical model exploring the association between self-compassion and receiving others' compassion, social safeness, body appreciation and disordered eating, on female adolescents. Considering the need of studying protective factors against disordered eating in adolescence, this model explored two main hypotheses. First, it was hypothesized that having self-compassion competences and perceiving others' compassion competences associate with higher social safeness and pleasure, which would associate with higher body appreciation. Second, it was hypothesized that higher body appreciative attitudes would associate with a weaker manifestation of disordered eating symptoms.

Methods

Participants

Participants in this study were 205 female adolescents, aged between 12 and 18 ($M=14.3$; $SD=1.5$). A total of 27.8% of participants ($n=57$) reported that they lived in a rural area, while 72.2% in an urban area. These girls attended school from the 7th to the 11th grade, and the majority of participants were in the 10th grade (30%). Regarding BMI values, approximately 2% of the participants presented thinness (BMI z-scores under $-2SD$), 76% presented normal weight (BMI z-scores between $-2SD$ and $+1SD$), 18% presented with overweight (BMI z-scores between $+1SD$ and $+2SD$) and 5% with obesity (BMI z-scores above $+2SD$) [34].

Measures

All measures used in the present study were administered in their Portuguese versions and were validated for the adolescent population. Cronbach's alpha values for all measures are presented in Table 1.

Compassionate engagement and action scales (CEAS) [35, 36]. CEAS are a set of three scales that assesses compassion competences for others, from others to oneself, and self-compassion. Each one (with 13 items each) divides into two subsections assessing engagement (motivation and competencies to engage with, attentional sensitivity to suffering signs); and action (motivation to attain wisdom and skills to ease or prevent suffering). Respondents reflect on potentially difficult situations and rate their frequency (1 "Never" to 10 "Always"). In the present study, only the scales assessing self-compassion (CEAS_SelfComp) and compassion received from others (CEAS_CompFromOthers) were used. The Portuguese version for adolescents [36] revealed good validity (α values from 0.71 to 0.92 in the subscales used in this study).

Social safeness and pleasure scale (SSPS) [33, 37]. SSPS evaluates current feelings of acceptance, belonging and safeness in social relationships. It is composed of 11 items to be rated in a scale from 0 (“Almost never”) to 4 (“Almost all the time”). SSPS has shown consistent psychometrics ($\alpha = 0.93$) in the validation for Portuguese adolescents.

Body appreciation scale-2 (BAS) [38, 39]. BAS assesses participants’ acceptance, gratitude, care and respect to one’s own body features and rejection of harmful societal appearance ideals. Its 10 items are rated between 1 (“Never”) and 5 (“Always”). Good psychometric properties of the BAS have been reported ($\alpha = 0.94$ for adolescent girls in the Portuguese validation study).

Eating disorder examination questionnaire (EDE-Q) [40, 41]. EDE-Q assesses the frequency and intensity of disordered eating attitudes and behaviours. It comprises 36 items divided into four subscales: restraint, weight concern, shape concern and eating concern. The global score results of the mean of all the subscales’ scores. Items are rated for the frequency of occurrence or severity. In the present study, only the global score was used. The Portuguese version showed good psychometric properties ($\alpha = 0.94$).

Body mass index (BMI). BMI was calculated by dividing participants’ self-reported weight by the square of their height (kg/m^2). BMI values were analysed considering the World Health Organization’s growth reference data for 5 to 19 years [34]. BMI z-scores (“BMI for age”, age and sex sensitive; zBMI) were estimated according to WHO Child Growth Standards and used to determine BMI categories among participants [34].

Procedures

The present study is part of a wider research project on positive body image and well-being of Portuguese female adolescents. Ethics approval was obtained from independent ethics committees. Students from five middle and secondary schools in the centre of Portugal were invited and accepted to participate in the study. Criteria for inclusion were presenting informed consent form signed by a legal guardian, being aged between 12 and 18, and being able to

autonomously complete self-report questionnaires. Principal, teachers at the schools, students and legal guardians were debriefed about the purposes of the study, the voluntary nature of the participation, the confidentiality of the data, and legal guardians and students were asked to sign a written informed consent form. Self-report instruments were counterbalanced and administered to participants at a class, with a researcher present to clarify doubts about the study.

Data analysis

Descriptive statistics (to explore the sample characteristics) and product-moment Pearson correlation analyses (analyse relationships between study variables) were computed using the software IBM SPSS (v.22; SPSS Inc., Chicago, IL).

A path analysis was conducted to examine the mediator roles of social safeness and body appreciation in the relationship between both self-compassion and compassion received from others and disordered eating. Age and zBMI's effects were controlled for in this model, due to their influence on body image and eating related variables [6,7,8,9]. This analysis (inspection of assumed structural relations between the variables) was conducted using the software AMOS (v.22, SPSS Inc., Chicago, IL). The Maximum Likelihood estimation method was used to estimate model path coefficients and to compute fit statistics (with 95% confidence interval). Chi-square tests were used to test the significance of direct, indirect, and total effects. The Bootstrap resampling method was used to test the significance of the mediational paths, with 5000 Bootstrap samples and 95% confidence intervals around the standardized estimates of effects (total, direct and indirect). The mediational effect is considered to be statistically significant ($p < 0.05$) if zero is not included in the interval between the lower and the upper bound of the 95% bias-corrected confidence intervals [42]. Several goodness-of-fit measures were used to assess the adjustment of the tested model to empirical data: Chi-square (χ^2) and Normed Chi-square ($\chi^2/d.f.$) [43]; Normed Fit Index (NFI) [43] Comparative Fit Index (CFI) and Tucker Lewis

Index (TLI)[44]; and Root-Mean Square Error of Approximation (RMSEA) with 95% confidence interval.

Results

Descriptive and correlation analyses

Mean and standard deviation values of the studied variables are presented in Table 1.

Correlation analysis (Table 1) showed that self-compassion associated positively (with a magnitude between weak and moderate) with compassion received from others, feelings of social safeness and body appreciation, and negatively (with weak magnitude) with disordered eating and age. Compassion received from others associated positively and strongly with feelings of social safeness, and positively and moderately with body appreciation. This scale also showed negative and weak associations with disordered eating and age. Feelings of social safeness showed a positive and moderate association with body appreciation, and negative and weak ones with disordered eating and age. Body appreciation presented a strong negative association with disordered eating, and negative and weak associations with age and zBMI. Finally, age and zBMI correlated negatively and weakly.

Considering that age and zBMI presented significant correlations with variables in the study, its effects were controlled for in path analysis.

Table 1. Cronbach's alphas (α), means (M), and standard deviations (SD) for the total sample ($N = 205$), and intercorrelation scores on self-report measures.

	α	M	SD	1	2	3	4	5	6
1.CEAS_SelfComp	.81	65	15	-					
2.CEAS_CompFromOthers	.93	69	17	.29***	-				
3.SSPS	.94	43	9	.30***	.64***	-			
4.BAS	.94	4	1	.36***	.41***	.46***	-		
5.EDE-Q	.95	1	1	-.24***	-.21**	-.25***	-.62***	-	
6.Age	-	14.3	1.5	-.16**	-.28***	-.22**	-.29***	.04	-
7.zBMI	-	20.5	3.2	-.10	-.02	.04	-.13*	.31***	-.16**

Note. * $p < .050$; ** $p < .010$; *** $p < .001$.

Path analysis

A fully saturated path analysis model (35 parameters) was first tested, accounting for 44%, 32%, and 45% of the variances of social safeness, body appreciation, and disordered eating, respectively. Some of its paths were not significant and were subsequently removed, and the overall model was readjusted. These paths were: the direct effect of social safeness on disordered eating ($b_{SSPS}=0.00$; $SE_b=0.01$; $Z=-0.23$; $p=0.821$), the direct effect of age on social safeness ($b_{age}=-0.11$; $SE_b=0.32$; $Z=-0.36$; $p=0.723$), the direct effect of self-compassion on disordered eating ($b_{CEAS_SelfComp}=0.00$; $SE_b=0.01$; $Z=-0.49$; $p=0.627$), the direct effect of compassion received from others on disordered eating ($b_{CEAS_CompFromOthers}=0.00$; $SE_b=0.00$; $Z=0.55$; $p=0.582$), the direct effect of zBMI on social safeness ($b_{zBMI}=0.54$; $SE_b=0.45$; $Z=1.21$; $p=0.227$), the direct effect of

compassion received from others on body appreciation ($b_{\text{CEAS_CompFromOthers}}=0.01$; $SE_b=0.00$; $Z=1.45$; $p=0.146$), and the direct effect of age on disordered eating ($b_{\text{Age}}=-0.09$; $SE_b=0.45$; $Z=1.21$; $p=0.227$).

The readjusted and final path model is presented in Fig. 1. This model accounted for 43% of the variance of social safeness, 32% of the variance of body appreciation, and 44% of the variance of disordered eating. It presented a good fit to empirical data: $CMIN/df=1.119$, $\chi^2_{(7)}=7.836$, $p=0.543$ [43]; $NFI=0.978$, $CFI=0.998$, $TLI=0.993$ [43, 44]; $RMSEA=0.024$, $p=0.654$, 95% CI 0.000–0.092 [44]. This final path model (with all paths significant at a significance level of 95%) allowed to notice that self-compassion presented positive direct effects of 0.12 on social safeness ($b_{\text{CEAS_SelfComp}}=0.07$; $SE_b=0.03$; $Z=2.23$; $p<0.050$), and of 0.20 on body appreciation ($b_{\text{CEAS_SelfComp}}=0.01$; $SE_b=0.00$; $Z=3.20$; $p<0.010$). It also presented indirect effects on body appreciation through social safeness ($\beta = 0.05$; 95% CI -0.002 to 0.102), and on disordered eating through both social safeness and body appreciation ($\beta = -0.14$; 95% CI -0.225 to -0.063). Compassion received from others presented a positive direct effect on social safeness of 0.61 ($b_{\text{CEAS_CompFromOthers}}=0.30$; $SE_b=0.03$; $Z=11.00$; $p<0.001$), and indirect effects on body appreciation through social safeness ($\beta = 0.22$; 95% CI 0.135 – 0.319) and on disordered eating through social safeness and body appreciation ($\beta = -0.13$; 95% CI -0.197 to -0.077). Feelings of social safeness were shown to directly and positively impact on body appreciation ($\beta = 0.36$; $b_{\text{SSPS}}=0.03$; $SE_b=0.01$; $Z=5.89$; $p<0.001$), and indirectly and negatively on disordered eating through body appreciation ($\beta = -0.21$; 95% CI -0.300 to -0.131). Body appreciation impacted directly on disordered eating ($\beta = -0.59$; $b_{\text{BAS}}=-0.97$; $SE_b=0.09$; $Z=-11.06$; $p<0.001$). Effects of variables to be controlled for were also examined. Both age and zBMI associated directly with body appreciation (age: $\beta = -0.20$; $b_{\text{Age}}=-0.10$; $SE_b=0.03$; $Z=-3.28$; $p<0.010$; and zBMI: $\beta = -0.15$; $b_{\text{zBMI}}=-0.12$; $SE_b=0.05$; $Z=-2.58$; $p<0.050$), and zBMI associated directly with disordered eating ($\beta = 0.23$; $b_{\text{zBMI}}=0.30$; $SE_b=0.07$; $Z=4.41$; $p<0.001$). Age and zBMI also revealed an indirect effect

on disordered eating via body appreciation (age: $\beta = 0.12$; 95% CI 0.034–0.20; and zBMI: $\beta = 0.09$; 95% CI 0.024–0.160).

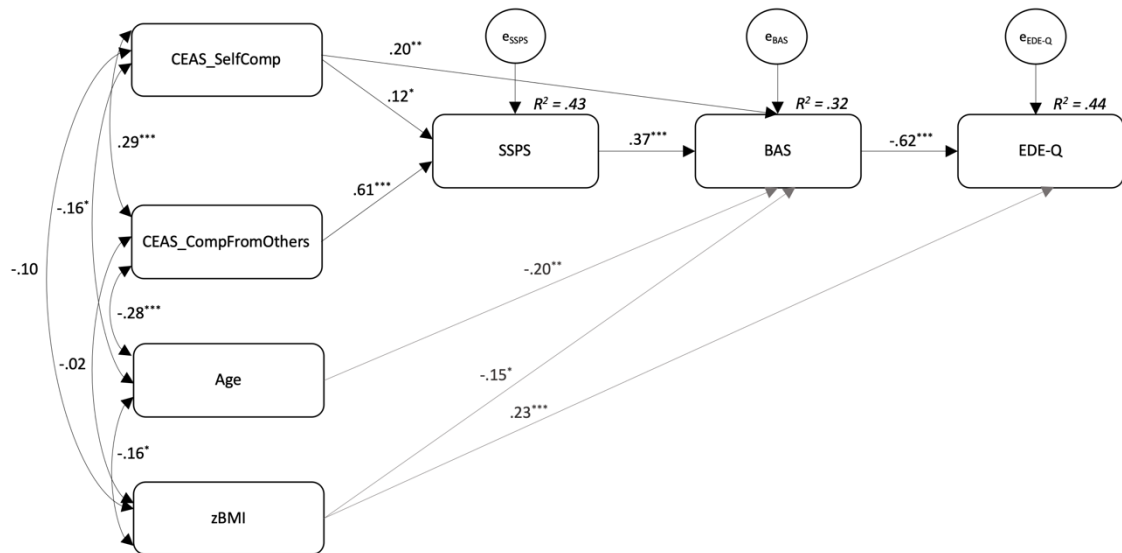


Figure 1. Final path model. Standardized path coefficients among variables are presented. All path coefficients are significant at the .050 level.

Note. * $p < .05$; ** $p < .01$; *** $p < .001$

Discussion

The present study aimed at proposing a model hypothesizing that being self-compassionate and receiving compassion from others associate social safeness, which associates with higher body appreciation and, in turn, with a weaker manifestation of disordered eating symptoms. This study may provide important insights on protective factors against disordered eating in adolescent girls.

Correlations between variables were explored. Similarly to results using adult samples [33], self-compassion and receiving others' compassion associated positively with social safeness. To the extent of our knowledge, this finding was not yet reported in adolescents. One possible

explanation is the link between compassion and the activation of the emotion regulation system associated to feelings of calmness, affiliation, and connectedness, that is, feelings of social safeness and pleasure [31, 32]. Self-compassion and receiving others' compassion also associated positively with body appreciation. This correlation of self-compassion was already found in samples of adults [25, 26]. The finding that both self-compassion and receiving others' compassion associate with body appreciation seems to be novel. This finding seems to underline that when adolescent girls have the competences to self-direct kindness and understanding, and perceive the same attitudes from close others, they seem more able to relate with their own bodies with kindness, acceptance, and protection. Moreover, compassion variables in this study associated negatively with disordered eating, an expected finding based on other studies' findings [27, 28]. Social safeness and body appreciation correlated positively, and body appreciation correlated negatively with disordered eating, correlations already found in adult samples [25].

The model explored via path analysis explained 43%, 32% and 44% of the variances of social safeness, body appreciation and disordered eating symptoms. First, the model proposed a direct relationship between self-compassion competences and both social safeness and body appreciation. This finding is supported by previous studies in adults [25, 26] and suggests that, in female adolescents, self-compassion competences associate positively with an experience of the social world as safe and reassuring and an attitude of body appreciation. Self-compassion also presented an indirect association with body appreciation, mediated by social safeness, but with less noteworthy strength ($\beta = 0.05$) Regarding compassion received from others, it only associated directly with social safeness, an expected result based on Kelly and colleagues' findings [45]. These authors reported that social safeness is strongly predicted by the amount of support one receives. Moreover, the association of compassion received from others with body appreciation was only indirect, but with significant strength ($\beta = 0.22$).

In sum, self-compassion competences and perceived compassionate competences from others presented an indirect association with disordered eating symptoms. This indirect

association seems to be mediated by social safeness and by body appreciation. When accounting for age and zBMI's effects, self-compassion and receiving compassion from others associated with higher social safeness, which associated with higher body appreciation, and in turn with a weaker manifestation of disordered eating symptoms. These results may mean that when adolescent girls perceive that others treat them in a kind and understanding manner in times of suffering, they may tend to experience positive feelings of safeness and pleasure in their social contexts. This may constitute a proper environment for them to relate with their body characteristics and idiosyncrasies in an understanding, accepting and kind manner. This finding is in line with the main finding of the present study: both competences for self-compassion and compassion received from others associated with a weaker display of disordered eating via higher feelings of social safeness and higher body appreciation.

One possible explanation for present results lies on Gilbert's [29] input on social safeness, i.e., the lack of social safeness associates with the perception of a lower social rank position and thus with feelings of inferiority and shame. These are thought to provoke defensive and concealment strategies which make the individual more vulnerable to psychopathological symptoms [29]. Taking this into account, it may be possible that adolescent girls who have self-soothing competences and who perceive the same competences in others (directed to themselves) may feel safe in their social world. These feelings of social safeness may thus protect them from the body image dimension putting them at risk in their social rank (e.g., having body features that are not in line with social beauty standards does not diminish their perceived self-worth). Specifically, present findings may imply that social safeness in adolescents associates with a state of peace with their body image that may lower the probability of body-concealing behaviours, in which disordered eating is included.

Strengths and limits

Strengths of the current study include the use of a diverse sample of Portuguese girls, and the use of counterbalanced validated psychological measures. Nonetheless, the present study used a cross-sectional design, which prevents causal conclusions. Prospective studies are thus necessary to explore relations of causality. Another limitation is that disordered eating is a complex phenomenon; therefore, upcoming studies should explore the roles of other contributing variables. Finally, the use of self-report measures may imply bias, and it would be preferable to use assessment interviews.

What is already known on this subject?

Compassion-related and interpersonal factors are associated with a secure relationship with one's body image. Positive body image associates with healthy eating attitudes and behaviours.

What does this study add?

In conclusion, the present study seems to underline the importance of establishing warm and caring relationships with oneself and others, and to provide novel information on female adolescents' health and well-being. Although disordered eating is a multicausal phenomenon, results suggested the contribution of self-compassion and compassion received from others for the construction of a safe social world, as well as of a more peaceful relationship with body image in female teenagers, with a potential protective effect on disordered eating.

Taking into account that compassion is a skill that is susceptible to cultivation (i.e., practicing compassionate attention, thinking, feeling, and behaviour in relation to one's and others' suffering; [46]), and that it is believed that interventions to promote adolescents' mental health should reinforce protective factors and heighten alternatives to risky behaviours [10], present findings may point to the development of programs for female adolescents (delivered in digital media, schools, or the community) that include the cultivation of compassionate and affiliative skills to promote positive body image and influence the manifestation of disordered

eating. Regarding the clinical setting, these findings suggest a potential means to promote positive body image. This set of attitudes and behaviours is considered important for going beyond the elimination of negative symptoms and invest in relapse-prevention and maintenance of therapeutic gains in patients with eating disorders [47].

Declarations

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Consent to participate: Informed consent was obtained from all individual participants included in the study.

Consent for publication: Participants were informed about the intention to disseminate the results of the investigation and gave their consent. All authors approved the final version of the manuscript as well as its submission.

References

1. Jaworska N, MacQueen G (2015) Adolescence as a unique developmental period. *J Psychiatry Neurosci* 40(5):291–293. <https://doi.org/10.1503/jpn.150268>
2. Steinberg L (2005) Cognitive and affective development in adolescence. *Trends Cogn Sci* 9(2):69–74. <https://doi.org/10.1016/j.tics.2004.12.005>
3. Ahmed SP, Bittencourt-Hewitt A, Sebastian CL (2015) Neurocognitive bases of emotion regulation development in adolescence. *Dev. Cogn. Neurosci* 15:11-25. <https://doi.org/10.1016/j.dcn.2015.07.006>
4. Lee FS, Heimer H, Giedd N, Lein ES, Šestan N, Weinberger DR, Casey BJ (2014) Adolescent mental health - opportunity and obligation. *Science* 346(6209):547-549. <https://doi.org/10.1126/science.1260497>
5. Powers A, Casey BJ (2015) The adolescent brain and the emergence and peak of psychopathology. *J. Infant. Child. Adolesc. Psychother* 14(1):3-15. <https://doi.org/10.1080/15289168.2015.1004889>
6. Micali N, Hagberg KW, Petersen I, Treasure JL (2013) The incidence of eating disorders in the UK in 2000–2009: findings from the General Practice Research Database. *BMJ Open* 3: e002646. <https://doi.org/10.1136/bmjopen-2013-002646>
7. Micali N, De Stavola B, Ploubidis G, Simonoff E, Treasure J, Field AE (2015) Adolescent eating disorder behaviours and cognitions: Gender-specific effects of child, maternal and family risk factors. *Br J Psychiatry* 207(4):320–327. <https://doi.org/10.1192/bjp.bp.114.152371>
8. Westerberg-Jacobson J, Ghaderi A, Edlund B (2013) A Longitudinal Study of Motives for Wishing to Be Thinner and Weight-control Practices in 7- to 18-Year-Old Swedish Girls. *Eur Eat Disord Rev* 20(4): 294-302. <https://doi.org/10.1002/erv.1145>
9. Larson N, Neumark-Sztainer D, Story M (2009) Weight control behaviours and dietary intake among adolescents and young adults: longitudinal findings from Project EAT. *J Am Diet Assoc* 109(11): 1869–1877. <https://doi.org/10.1016/j.jada.2009.08.016>

10. WHO (2020) Adolescent mental health. <https://www.who.int/news-room/factsheets/detail/adolescent-mental-health>. Accessed 22 February 2021
11. Reel J, Voelker D, Greenleaf C (2015) Weight status and body image perceptions in adolescents: current perspectives. *Adolesc Health Med Ther*6:149–158. <https://doi.org/10.2147/AHMT.S68344>
12. Cash C (2004) Body image: past, present, and future. *Body Image* 1(1): 1-5. [https://doi.org/10.1016/S1740-1445\(03\)00011-1](https://doi.org/10.1016/S1740-1445(03)00011-1)
13. Stice E, Whitenton K (2002) Risk factors for body dissatisfaction in adolescent girls: a longitudinal investigation. *Dev Psychol* 8(5): 669-678. <https://doi.org/10.1037/0012-1649.38.5.669>
14. McKnight Investigators (2003) Risk factors for the onset of eating disorders in adolescent girls: results of the McKnight longitudinal risk factor study. *Am J Psychiatry* 160(2):248-54. <https://doi.org/10.1176/ajp.160.2.248>
15. Burnette CB, Kwitowski MA, Mazzeo SE (2017) "I don't need people to tell me I'm pretty on social media:" A qualitative study of social media and body image in early adolescent girls. *Body Image* 23:114-125. <https://doi.org/10.1016/j.bodyim.2017.09.001>
16. Piran N (2016) Embodied possibilities and disruptions: The emergence of the Experience of Embodiment construct from qualitative studies with girls and women. *Body Image* 18: 43-60. <https://doi.org/10.1016/j.bodyim.2016.04.007>
17. Baceviciene M, Jankauskiene R (2020) Associations between Body Appreciation and Disordered Eating in a Large Sample of Adolescents. *Nutrients* 12(3): 752. <https://doi.org/10.3390/nu12030752>
18. Andrew R, Tiggemann M, Clark L (2016) Predictors and health-related outcomes of positive body image in adolescent girls: A prospective study. *Dev Psychol* 52(3): 463-474. <https://doi.org/10.1037/dev0000095>

19. Tylka TL, Wood-Barcalow NL (2015) What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image* 14: 118-129. <https://doi.org/10.1016/j.bodyim.2015.04.001>
20. Augustus-Horvath CL, Tylka TL (2006) The Acceptance Model of Intuitive Eating: A Comparison of Women in Emerging Adulthood, Early Adulthood, and Middle Adulthood. *J Couns Psychol* 58(1): 110–125. <https://doi.org/10.1037/a002212>
21. Avalos LC, Tylka TL (2006) Exploring a model of intuitive eating with college women. *J Couns Psychol* 53(4): 486–497. <https://doi.org/10.1037/0022-0167.53.4.486>
22. Wood-Barcalow NL, Tylka TL, Augustus-Horvath CL (2010) “But I Like My Body”: positive body image characteristics and a holistic model for young-adult women. *Body Image* 7: 106–116. <https://doi.org/10.1016/j.bodyim.2010.01.001>
23. Homan KJ, Tylka TL (2015) Self-compassion moderates body comparison and appearance self-worth’s inverse relationships with body appreciation. *Body Image* 15: 1–7. <https://doi.org/10.1016/j.bodyim.2015.04.007>
24. Kelly AC, Stephen E (2016) A daily diary study of self-compassion, body image, and eating behaviour in female college students. *Body Image* 17:152–160. <https://doi.org/10.1016/j.bodyim.2016.03.006>
25. Marta-Simões J, Ferreira C (2020) Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eat Weight Disord.* 25(2):399-406. <https://doi.org/10.1007/s40519-018-0612-0>
26. Marta-Simões J, Ferreira C, Mendes AL (2016) Exploring the effect of external shame on body appreciation among Portuguese young adults: the role of self-compassion. *Eat Behav* 23:174–179. <https://doi.org/10.1016/j.eatbeh.2016.10.006>
27. Steindl SR, Buchanan K, Goss K, Allan, S (2017) Compassion focused therapy for eating disorders: A qualitative review and recommendations for further applications. *Clin Psychol* 21(2): 62-73. <https://doi.org/10.1111/cp.12126>

28. Pullmer R, Coelho JS, Zaitsoff SL (2019) Kindness begins with yourself: The role of self-compassion in adolescent body satisfaction and eating pathology. *Int J Eat Disord* 52(7): 809-816. <https://doi.org/10.1002/eat.23081>
29. Gilbert, P. (2005). Social mentalities: A biopsychosocial and evolutionary reflection on social relationships. In Baldwin M (ed) *Interpersonal cognition*. Guilford, New York, pp 299–333
30. Gilbert, P. (2014). The origins and nature of compassion focused therapy. *Br J Health Psychol* 53(1): 6-41. <https://doi.org/10.1111/bjc.12043>
31. Gilbert P (2005) *Compassion: conceptualizations, research and use in psychotherapy*. Routledge, London
32. Gilbert P (2009) *The compassionate mind: A new approach to life's challenges*. Constable & Robinson, London
33. Gilbert P, McEwan K, Mitra R, Richter A, Franks L, Mills A, Bellew R, Gale, C (2009). An exploration of different types of positive affect in students and in patients with bipolar disorder. *Clin Neuropathol*, 6, 135–143
34. de Onis M, Onyango AW, Borghi E, Siyam A, Nishida C, Siekmann J (2007) Development of a WHO growth reference for school-aged children and adolescents. *Bull World Health Organ* 85(9): 660-667. <https://doi.org/10.2471/BLT.07.043497>
35. Gilbert P, Catarino F, Duarte C, Matos M, Kolts R, Stubbs J, Ceresatto L, Duarte J, Pinto-Gouveia J, Basran J (2017) The development of compassionate engagement and action scales for self and others. *J. Compassionate Health Care* 4(4). <https://doi.org/10.1186/s40639-017-0033-3>
36. Cunha M, Rodrigues C, Matos M, Galhardo A, Couto M (2017) Compassionate Attributes and Action Scale for Adolescents: adaptation and validation (EV0094). *Eur Psychiatry* 41: S1-S910. <https://doi.org/10.1016/j.eurpsy.2017.01.423>

37. Miguel RR, Sousa R, Brazão N, Rijo D, Castilho P, Gilbert PP (2021) Psychometric properties and measurement invariance of the Social Safeness and Pleasure Scale in adolescent samples. Manuscript in preparation.
38. Tylka TL, Wood-Barcalow NL (2015) The Body Appreciation Scale-2: Item refinement and psychometric evaluation. *Body Image* 12: 53-67. <https://doi.org/10.1016/j.bodyim.2014.09.006>
39. Lemoine JE, Konradsen H, Jensen AL, Roland-Lévy C, Ny P, Khalaf A, Torres S (2018) Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body Image* 26:1-9. <https://doi.org/10.1016/j.bodyim.2018.04.004>
40. Fairburn CG, Beglin SJ (1994) Assessment of eating disorders: Interview of self-report questionnaire? *Int J Eat Disord* 16(4):363–370. [https://doi.org/10.1002/1098-108X\(199412\)16\(4\):363-370](https://doi.org/10.1002/1098-108X(199412)16(4)<363::AID-EAT1098108X199412>3.0.CO;2-3)
41. Machado PP, Martins C, Vaz AR, Conceição E, Bastos AP, Gonçalves S (2014) Eating disorder Examination questionnaire: psychometric properties and norms for the Portuguese population. *Eur Eat Disord Rev* 22(6):448–453. <https://doi.org/10.1002/erv.2318>
42. Kline RB (2011) Principles and practice of structural equation modelling (3rd Ed.). Guilford, New York
43. Hair JF, Grablovsky BJ, Anderson RE, Tatham RL, Sparkman RM (2006) Multivariate Data Analysis with Readings. *J Mark Res* 16(3): 437. <https://doi.org/10.2307/3150726>
44. Hu LT, Bentler PM (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Modeling* 6(1): 1-55. <https://doi.org/10.1080/10705519909540118>
45. Kelly AC, Dupasquier J (2016) Social safeness mediates the relationship between recalled parental warmth and the capacity for self-compassion and receiving compassion. *Pers Individ Differ* 89: 157-161. <https://doi.org/10.1016/j.paid.2015.10.017>

46. Gilbert P (2010) Training Our Minds in, with and for Compassion. An Introduction to Concepts and Compassion - Focused Exercises. <https://www.getselfhelp.co.uk/docs/GILBERT-COMPASSION-HANDOUT.pdf>. Accessed 28 May 2021
47. Cook-Cottone CP (2005) Incorporating positive body image into the treatment of eating disorders: A model for attunement and mindful self-care. *Body Image* 14: 158-167. <https://doi.org/10.1016/j.bodyim.2015-03.004>

STUDY VI

Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents' well-being

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Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents' well-being

Joana Marta-Simões^a, Tracy L. Tylka^b, and Cláudia Ferreira^a

^aCINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

^bDepartment of Psychology, The Ohio State University, Columbus and Marion Campuses, Columbus, Ohio, United States

Abstract

Interpersonal and body image-related factors have been associated with adolescents' well-being. Since data on positive body image in adolescence and its relationship with well-being remain scarce, the present study explored the roles of early affiliative memories, social safeness, and body appreciation in adolescents' well-being.

Path analysis' results showed that social safeness and body appreciation mediated the relationship between early affiliative memories and physical, psychological and school environment well-being.

This suggests that not only early affiliative memories are important for adolescents' well-being but also current feelings of social belonging and body appreciation. Future longitudinal studies should further confirm these results.

Keywords: adolescence, body appreciation, path analysis, social safeness, well-being.

Introduction

Adolescence is a stage of deep physical and psychological development (e.g. WHO, 2019). Changes during the teen years are mostly in terms of physical maturation, cognitive abilities, and social interactions, and are accompanied by many individual, cognitive, social, and contextual modifications (WHO, 2019). Many scholars have described several challenges in this developmental stage and consider conflict and defeat as being normative situations during this stage (e.g. Hall, 2015). For instance, some studies have found that well-being and quality of life decrease during adolescence (e.g. Viejo et al., 2018).

According to the World Health Organization (WHO), quality of life relates to an individual's physical health, psychological well-being, independence level, social relationships, and relationship with their environment and social context (Ravens-Sieberer et al., 2006). Personal and environmental factors, and their interaction, contribute to its perception (Bramston et al., 2002). The social context (e.g. having satisfactory relationships with parents and friends) and prosocial behaviour are particularly known to be central factors to adolescents' quality of life (Odunlami, 2017).

Warm, close, and safe relationships with others since birth are advantageous for adolescents' well-being and quality of life due to its association with adaptive strategies to deal with difficult emotions (Richter et al., 2009). Experiencing early soothing and reassuring gestures from others is theorized and found to be linked to the abilities of self-soothing and self-reassurance later on (Richter et al., 2009). Early feelings of safeness are indeed essential to the development of secure attachment bonds (Baldwin and Dandeneau, 2005; Bowlby, 1969). For instance, adolescents who grew up in a supportive family environment are more likely to be socially skilled and, later on, experience more positive and socially safe friendships (Khodarahimi, 2016; Richter et al., 2009). Moreover, the specific ability to recollect early memories of warmth and safeness ("the subjective perception of one's early rearing experiences"; Cunha et al., 2013) has been associated with a lower level of psychopathology (Cunha et al., 2013; Richter et al.,

2009), and studies conducted in Portuguese samples have shown that adolescents' ability to recollect early warm memories with close others is related to higher levels of self-compassion (an important adaptive emotion regulation mechanism) (e.g. Cunha et al., 2013). Studies using adult samples have also stated the association between the recall of early memories of warmth and safeness and current social safeness. Specifically, several studies conducted in samples of Portuguese adults found that social safeness mediates the associations of early positive memories with disordered eating symptoms (Oliveira et al., 2017), with shame, appearance-based social comparisons and disordered eating (Ferreira et al., 2018) and, finally, with symptoms of depression (Matos et al., 2015).

In addition to early affiliative memories and current feelings of social safeness (the extent to which people experience their social world as safe warm and soothing; Gilbert et al., 2009), body image is also important for adolescents' quality of life and well-being. Adolescence comprises dramatic physical changes (skeletal, lean, and fat body mass growth, and markers of sexual maturation; Wheeler, 2018) which can impact both male and female adolescents' attitudes toward their body, and therefore their well-being (e.g. Viner et al., 2017). Several longitudinal studies controlling for body mass index have revealed that body dissatisfaction increases throughout adolescence, specifically between middle and high school (e.g. Bucchianeri et al., 2013). This increase deserves particular interest given that body dissatisfaction is a known predictor of disordered eating (e.g. Rosewall et al., 2018) and of symptoms of depression (e.g. Goldfield et al., 2010). Several studies have stressed sex differences in adolescents' negative body image with girls presenting higher dissatisfaction, and higher impact of body image dissatisfaction on self-esteem and on eating patterns (e.g. Mäkinen et al., 2012). However, the importance of body image for teenage boys has been given a growing interest with studies reporting important social-related negative influences on boys' drive for muscularity and weight concerns (Helfert and Wearchburger, 2011; Schaefer and Salafia, 2014), symptoms known for its association with unhealthy behaviours, namely disordered eating (e.g. Rodgers et al., 2012).

Research in the field of body image has suggested that studying positive body image among adolescents would contribute to prevention efforts and effective and lasting treatment of body image and eating-related difficulties (Halliwell, 2015; Smolak and Cash, 2011, Voelker et al., 2015). Despite its importance, this subject remains scarcely explored in adolescent populations, comparing to studies on adults. Available research has pointed family and friends to significantly contribute to several features of adult women's positive body image through gestures of social support and unconditional acceptance, as well as through reinforcing inner strength instead of focusing on appearance (Wood-Barcalow et al., 2010). Body appreciation is perhaps the most central feature of positive body image. It is defined as "holding favorable opinions of one's body, accepting one's body in spite of weight, body shape, and imperfections; respecting one's body by attending to its needs and engaging in healthy behaviours; and protecting one's body image by rejecting unrealistic images of the thin-ideal prototype portrayed in the media" (Avalos et al., 2005). Studies conducted with adult populations have reported the influence of social-related variables on body appreciation, namely those who showed that body appreciation associates positively with both early memories of warmth and safeness (of relationships with attachment figures and peers) and current social safeness (Marta-Simões and Ferreira, 2020a, 2020b; Oliveira et al., 2017; Pinto et al., 2017). This construct has also been found to be positively related to psychological well-being among both adults and adolescents (Tylka and Wood-Barcalow, 2015), and health-related behaviours (Andrew et al., 2016).

Taking into account the need to explore factors that contribute to adolescents' well-being and healthy development (Seiffge-Krenke et al., 2010), the aim of the present study was to explore a model including the roles of early affiliative memories, social safeness, and body appreciation on both male and female Portuguese adolescents' quality of life. Considering that literature states interpersonal relationships and body image as key-contributing areas to both boys' and girls' welfare, it was hypothesized that social safeness and body appreciation would act as mediators in the relationship between early affiliative memories and the quality of life

dimensions of psychological well-being, physical well-being, and school environment. Specifically, social safeness and body appreciation were expected to account for the relationship between early affiliative memories and these quality of life dimensions. Moreover, one particular aim of the present study was to explore whether recollecting early affiliative memories would associate with body appreciation via higher present feelings of social safeness. This hypothesis was proposed given the established relationship between early affiliative memories and both social safeness and body appreciation (in adult populations), and also the importance of interpersonal factors for positive body image. Finally, one specific aim of the present study was to explore sex differences in the proposed model. Considering that literature has already stated the importance of social and body image-related variables for both boys and girls, our hypothesis is that the model will be similarly adjusted for both sexes.

Methods

Participants

A total of 362 Portuguese adolescents (157 males and 205 females) participated in the study and were aged between 12 and 18 ($M=14.26$; $SD=1.50$). Regarding age classes (Spano, 2004), a total of 189 participants (52%) were aged between 12 and 14 (early adolescence), 156 (43%) were aged between 15 and 16 and, finally (middle adolescence), 17 (5%) were aged between 17 and 18 (late adolescence). Participants had a mean of 8.86 years of education ($SD=1.29$). In terms of frequency, 73 had completed the 7th grade, 77 the 8th grade, 73 the 9th grade, 106 the 10th grade and 33 the 11th grade. Independent samples *t*-tests tested whether age and years of education significantly differed between males and females. Results showed no differences between the two groups regarding age, $t(360)=-0.23$, $p=.820$, and years of education, $t(360)=0.09$, $p=.927$.

Measures

Cronbach's alpha values of the measures are presented in Table 1.

Early Memories of Warmth and Safeness Scale for Adolescents (EMWSS-A; Portuguese version for Adolescents by Cunha et al., 2014) assesses adolescents' access to memories of being soothed, safe, and connected with close others in childhood. It comprises 21 items rated on a 5-point scale (0 = *No, never* to 4 = *Yes, most of the time*). The EMWSS has evidenced reliability and validity when applied to Portuguese adolescents ($\alpha = .95$).

Social Safeness and Pleasure Scale (SSPS; Portuguese version for adolescents by Miguel et al., 2019) assesses adolescents' current feelings of belonging, acceptance, and safeness in their social worlds. It is composed of 11 items rated on a 5-point scale (0 = *Almost never* to 4 = *Almost all the time*). The SSPS has evidenced reliability and validity in Portuguese adolescents ($\alpha = .93$).

Body Appreciation Scale-2 (BAS-2; Portuguese version for adolescents by Lemoine et al., 2018) assesses adolescents' acceptance, appreciation, and respect towards their body characteristics and rejection of media-promoted harmful appearance ideals. BAS-2's 10 items are rated on a 5-point scale (1 = *Never* to 5 = *Always*). Good psychometric properties were reported in Portuguese adolescents ($\alpha = .94$ for girls and $\alpha = .91$ for boys).

KIDSCREEN-27 (translation for Portuguese by Gaspar and Matos, 2008) is a self-report instrument of health-related quality of life for children and adolescents (a shorter version of the KIDSCREEN-52). Its 27 items are divided into five dimensions but only three dimensions were used in the present study: Psychological Well-Being (assessing positive emotions and perceptions, as well as life satisfaction), Physical Well-Being (assessing one's level of physical activity, energy, and fitness), and School Environment (exploring one's perception of cognitive capacity, and about whether the school is an enjoyable place to be). In the original study, reliability (α) of each one of the five dimensions was above .70 (Ravens-Sieberer et al., 2007). In the current study, alpha coefficient values were .86 (Psychological Well-Being subscale), .84 (Physical Well-being subscale), and .79 (School Environment subscale).

Body Mass Index (BMI). BMI was calculated by dividing each participant's self-reported body weight by the square of their self-reported height (kg/m^2). BMI z-scores (zBMI) which are age and gender sensitive were calculated according to the recommended by WHO Child Growth Standards (2006), and using the provided software.

Procedures

Participants were recruited across five middle and secondary schools in the centre region of Portugal. Criteria for inclusion were presenting informed consent form signed by a legal guardian, being between 12 and 18, and to not report a mental or physical difficulty that could compromise the completion of self-report questionnaires. Ethics approval was obtained from the Portuguese Ministry of Education, by the National Commission for Data Protection, and by the Ethic Committee of the Faculty to which the researchers involved belong. The present study was accepted by the schools as part of the National Health Education Plan for Schools and the subjects who participated in the study did not receive any type of remuneration or incentive, participating freely. Principal and teachers of the schools, as well as students and their legal guardians, were informed about the aims and purpose of the study, the voluntary nature of the participation, and the confidentiality of the data, and legal guardians were asked to sign a written informed consent form. Self-report instruments were administered using a counterbalanced design. A researcher was in class to clarify doubts about the instructions or content of the measures. Although self-report instruments were administered to a total of 426 adolescents (186 males and 240 females) which met all inclusion criteria in the study, only 362 adolescents (157 males and 205 females) constituted the final sample given that some participants did not answer important survey questions.

Data analysis

To explore the characteristics of the sample, descriptive statistics (e.g. means and standard deviations) were used, and associations between the variables were analysed through product-moment Pearson correlation analyses. These were computed with software IBM SPSS (v.22; SPSS Inc., Chicago, IL).

To explore the main hypothesis, a path analysis was conducted using the software AMOS (v.22, SPSS Inc., Chicago, IL). The explored model included early affiliative memories, age, and zBMI as exogenous variables; social safeness and body appreciation as endogenous mediator variables; and psychological well-being, physical well-being, and school environment as endogenous variables. Age and zBMI were included in this model for their effects to be controlled, due to their significant correlation with variables in study. A multi-group analysis explored sex differences in the adequacy of the overall model. In this analysis, the adequacy of two models was estimated: one in which all parameters are allowed to differ between groups, and one in which all parameters are fixed to those obtained from analysis of the pooled data across groups. To test the significance of the regression coefficients and to compute the fit statistics, the Maximum Likelihood estimation method was used (with 95% confidence interval). Significance of direct, indirect, and total effects was measured by Chi-Square tests. The Bootstrap resampling method was used to test the significance of the indirect effects to test for mediation (with 5000 Bootstrap samples and 95% confidence intervals; Kline 2011). Several goodness-of-fit measures were used to assess the adjustment of the tested model to empirical data: Chi-Square (χ^2 ; Hair et al., 1998); Normed Chi-Square (χ^2/df ; Hair et al., 1998); Normed Fit Index (NFI; Hair et al., 1998); Comparative Fit Index (CFI; Hu and Bentler, 1999); Tucker Lewis Index (TLI; Hu and Bentler, 1999); and Root-Mean Square Error of Approximation (RMSEA; Hu and Bentler, 1999).

Results

Descriptive and correlational analyses

Means and standard deviations of the studied variables (see Table 1) were in accordance with those found in the Portuguese adolescent population (Cunha et al., 2014; Gaspar and Matos, 2008; Lemoine et al., 2018; Miguel et al., 2019). BMI values were assessed separately for boys and girls: 2.5% of boys and 1.5% of girls were classified as underweight, 70.5% of boys and 76.5% of girls were classified as normal weight, 24.8% of boys and 17.6% of girls were classified as overweight, and 3.2% of boys and 4.4% of girls were classified as obese, according to the WHO reference for adolescents (WHO, 2007). These values were in accordance with those found in studies in Portuguese adolescent samples (Ferreira et al., 2012; Marques and Matos, 2016).

Correlational analyses are presented for boys and girls in Table 1. For both genders, early affiliative memories correlated positively, with moderate-to-high magnitudes, with social safeness, body appreciation, and the three dimensions of well-being. Social safeness correlated positively, with moderate-to-high magnitudes, with body appreciation and the three dimensions of well-being. Body appreciation correlated positively, with moderate-to-high magnitudes, with the three dimensions of well-being the three dimensions of well-being were correlated with each other, with moderate-to-high magnitudes.

Table 1. Cronbach's alphas (α), means (M), and standard deviations (SD) for the total sample ($N=362$), and intercorrelation scores on self-report measures for girls ($n=205$; below the diagonal) and boys ($n=157$; above the diagonal, in bold).

	α	M	SD	1	2	3	4	5	6	7	8
1. EMWSS	.90	72.85	10.28	-	.39***	.49***	.56***	.40***	.31***	-.16*	.28***
2. SSPS	.94	42.67	8.63	.37***	-	.53***	.63***	.42***	.52***	-.05	.21**
3. BAS-2	.94	3.86	.77	.38***	.47***	-	.60***	.55***	.49***	-.28***	.07
4. KIDSCREEN_Psyc	.86	3.84	.73	.47***	.67***	.51***	-	.53***	.52***	-.11	.19*
5. KIDSCREEN_Phys	.84	3.62	.75	.34***	.40***	.43***	.50***	-	.47***	-.33***	-.03
6. KIDSCREEN_Sch_Env	.79	3.67	.68	.31***	.46***	.48***	.60***	.42***	-	-.31***	.12
7. Age	-	14.26	1.50	-.20**	-.24**	-	-	-	-	-	-.01
8. zBMI	-	-	-	-.05	.00	-.16*	-.03	-.18**	.03	-.19**	-

Note. EMWSS_Peers = early warmth and safeness memories with peers; SSPS = social safeness and pleasure scale; BAS-2 = body appreciation; KIDSCREEN_Psyc = psychological well-being subscale of the KIDSCREEN-27; KIDSCREEN_Phys = physical well-being subscale of the KIDSCREEN-27; KIDSCREEN_Sch_Env = school environment subscale of the KIDSCREEN-27; zBMI = body mass index z-scores.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Path analysis

The fully saturated model was examined. This model consisted of 44 parameters and explained 15% of the variance on social safeness, 36% of the variance on body appreciation, 54% of the variance on psychological well-being, 33% of the variance on physical well-being, and 34% of the variance on school environment. Some paths were not significant: the paths from zBMI to psychological well-being ($b = .01$, $SE_b = .03$, $z = .42$, $p = 0.673$), school environment ($b = .01$, $SE_b = .03$, $z = .40$, $p = 0.692$); and social safeness ($b = .36$, $SE_b = .41$, $z = .87$, $p = 0.387$), and the path from age to psychological well-being ($b = -.02$, $SE_b = .02$, $z = -1.10$, $p = 0.270$); the path from early affiliative memories to school environment ($b = .00$, $SE_b = .00$, $z = 1.15$, $p = 0.249$), and the path from age to social safeness ($b = -.52$, $SE_b = .28$, $z = -1.81$, $p = 0.070$). These nonsignificant paths were subsequently removed, and the model recalculated to arrive at a more parsimonious model.

The final path model with the nonsignificant paths trimmed is presented in Figure 1. This model explained 14% of the variance of social safeness, 35% of the variance of body appreciation, 54% of the variance of psychological well-being, 33% of the variance of physical well-being, and 33% of the variance of school environment. Good model fit indices were achieved: $CMIN/df = 1.150$, $\chi^2(6) = 6.899$, $p = 0.33$; $NFI = .992$, $CFI = .999$, $TLI = .995$; $RMSEA = .020$, $p = 0.767$, 95% CI = .000 to .074.

Early affiliative memories were directly and positively associated with social safeness ($\beta = .38$, $b = .32$, $SE_b = .04$, $z = 7.81$, $p < 0.001$), body appreciation ($\beta = .26$, $b = .02$, $SE_b = .00$, $z = 5.63$, $p < 0.001$), psychological well-being ($\beta = .23$, $b = .02$, $SE_b = .00$, $z = 5.80$, $p < 0.001$), and physical well-being ($\beta = .14$, $b = .01$, $SE_b = .00$, $z = 2.77$, $p < 0.010$). Early affiliative memories were indirectly associated with body appreciation through social safeness ($\beta = .14$, 95% CI: .091, .202). Regarding well-being variables, early affiliative memories were indirectly associated with psychological well-being through social safeness and body appreciation ($\beta = .27$, 95% CI: .199, .338); with physical well-being through social safeness and body appreciation ($\beta = .19$, 95% CI: .129, .267); and, finally,

with school environment through social safeness and body appreciation ($\beta=.23$, 95% CI: .163, .307).

Social safeness was directly and positively associated with body appreciation ($\beta=.37$, $b=.03$, $SE_b=.00$, $z=8.06$, $p<0.001$), psychological well-being ($\beta=.45$, $b=.04$, $SE_b=.00$, $z=10.68$, $p<0.001$), physical well-being ($\beta=.20$, $b=.02$, $SE_b=.00$, $z=3.91$, $p<0.001$), and school environment ($\beta=.34$, $b=.03$, $SE_b=.00$, $z=6.85$, $p<0.001$). Social safeness was associated with psychological well-being ($\beta=.09$, 95% CI: .054, .134), physical well-being ($\beta=.11$, 95% CI: .064, .159), and school environment ($\beta=.10$, 95% CI: .058, .147), through body appreciation.

Body appreciation was directly and positively associated with psychological well-being ($\beta=.24$, $b=.23$, $SE_b=.04$; $z=5.56$, $p<0.001$), physical well-being ($\beta=.29$, $b=.28$, $SE_b=.05$, $z=5.37$, $p<0.001$), and school environment ($\beta=.26$, $b=.23$, $SE_b=.04$, $z=5.10$, $p<0.001$).

A multi-group analysis examined the model's invariance for boys and girls. A comparison between an invariant model, in which the factor loadings were not specified to vary between girls and boys, and the variant model, in which the factor loadings were specified to vary between girls and boys was not significant, $\chi^2_{\text{difference}}(16)=15.474$, $p=0.490$, indicating sex invariance of the model.

In summary, analysis of the final path model suggests that, for girls and boys, positive memories of early affiliative relationships were directly linked to higher psychological and physical well-being. Positive memories of early affiliative relationships were also indirectly linked to psychological, physical, and school environment well-being, through social safeness and body appreciation.

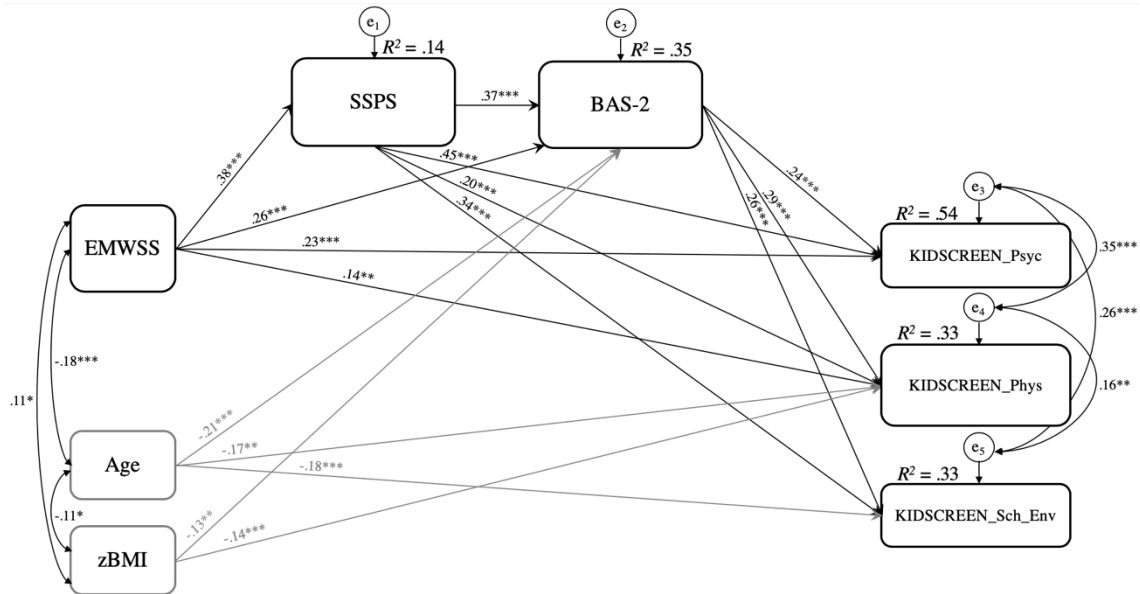


Figure 1. Final path model. Standardized path coefficients among variables are presented. All path coefficients are significant at the .05 level. EMWSS_Peers = Early warmth and safeness memories with peers; SSPS = Social safeness and pleasure scale; BAS-2 = Body appreciation; KIDSCREEN_Psyc = Psychological well-being subscale of the KIDSCREEN-27; KIDSCREEN_Phys = Physical wellbeing subscale of the KIDSCREEN-27; KIDSCREEN_Sch_Env = School environment subscale of the KIDSCREEN-27; zBMI = Body mass index z-scores.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Discussion

The present study explored whether social safeness and body appreciation would act as mediators of the impact of adolescents' early affiliative memories in psychological well-being, physical well-being, and school environment well-being. Given that it is considered important to investigate factors that contribute to adolescents' positive body image (e.g. Voelker et al., 2015), one specific aim of the present study was to investigate whether early affiliative memories associate with adolescents' body appreciation via present feelings of social safeness.

As expected, correlation analysis showed that for both boys and girls, early affiliative memories, social safeness, and body appreciation were significantly associated with physical well-being, psychological well-being, and school environment well-being. These findings are supported by literature that stated that belonging and having pleasing relationships are key to adolescents' quality of life (e.g. Odunlami, 2017) Holding body appreciative attitudes appears to be likewise associated with quality of life and well-being in this stage.

Path analysis results were in accordance with our main hypothesis: early affiliative memories were related to the three well-being dimensions through the effects of social safeness and body appreciation. It is possible, then, that adolescents who are able to recollect childhood memories of warm and safe interactions with close others may be more prone to experience feelings of social safeness in current relationships and also to appreciate their bodies, which then may enhance their physical well-being, psychological well-being, and school environment. Furthermore, results indicated that this model is suitable for both boys and girls.

Early affiliative memories were found to positively impact in social safeness. This association was reported in studies conducted with Portuguese adults (Marta-Simões and Ferreira, 2019; Oliveira et al., 2017), and is consistent with research finding an association between growing up in supportive family environments and adolescents' social skills and tendency to stablish positive friendships (e.g., Khodarahimi, 2016; Richter et al., 2009). Early affiliative memories were also found to positively impact in body appreciation. One explanation may be that kind, protective and safe relationships with others in the first years of life associate with later self-soothing and self-reassurance abilities (Richter et al., 2009), which are important strategies for body image flexibility (e.g. Duarte et al., 2017), and thus a more appreciative relationship with one's one body image. Furthermore, the association between early affiliative memories and body appreciation was found to be mediated by social safeness, that is, it seems that adolescents who are able to recollect early affiliative memories appreciate their bodies via the experience of their social world as safe and pleasurable. Previous studies on adult women

(Oliveira et al., 2017) and college women (Wood-Barcalow et al., 2010) indeed supported the idea that close others and peers' support is one important factor that contributes to positive body image.

The present study adds to literature by exploring positive factors that appear to contribute to adolescents' well-being. Moreover, it sheds light on the hypothesis that for both boys and girls, experiencing the social context as safe and pleasurable and holding positive attitudes towards their body may play important roles in their well-being. Although literature is slanted towards investigating body image in girls, this study makes an important contribution by showing that boys may go through equally important body-related challenges during adolescence, and that body appreciation plays an important role in defining boys' and girls' well-being. In fact, previous studies had already pointed that body image may play an important role defining boys' health-related attitudes, however, these specific relationships had not, to the extent of our knowledge, been tested and compared in both sexes.

Some limitations should be considered. First, the use of a cross-sectional design limits any conclusions regarding the directionality of the model relationships, and so prospective studies are necessary. Second, other variables may be involved in the study of adolescents' quality of life and should be explored in future studies. Third, the use of self-report measures is susceptible to measurement error and social desirability bias, and thus the use of interviews in upcoming studies should be considered. Additionally, one of the scales used in the present study requests participants to recall past experiences and although retrospective recall data has been found to be relatively reliable and stable, current emotional state may impact the recollection and current perceptions of the quality of interpersonal relationships (Brewin et al., 1993). By validating findings using other sources (e.g., parents, teachers, peers) or other assessment methodologies (e.g., observation, interviews) in prospect studies, this limitation may be overcome.

In terms of future directions, the present study suggests that is not only early affiliative interactions that are important for adolescents' well-being, but also having current feelings of belonging, acceptance, and safeness in the social context, and being appreciative toward one's body characteristics. Considering this, it seems important to investigate in experimental designs whether interventions that enhance social safeness and body appreciation may increase adolescents' well-being. In fact, affiliation and body appreciation are competencies that can be cultivated to determine whether they can promote well-being and prevent psychopathology. In conclusion, the main finding of the present study was that early affiliative memories were associated with adolescents' perceived well-being through social safeness and body appreciation. This finding extends research showing that a sense of belonging and having satisfactory relations with parents and friends are crucial for adolescents' perception of well-being. The present study also provided insight into the unique contribution of body appreciation to adolescents' physical well-being, psychological well-being, and school environment well-being in response to calls to consider body image when investigating adolescents' well-being and quality of life.

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References

Andrew R, Tiggemann M and Clark L (2016) Positive body image and young women's health: Implications for sun protection, cancer screening, weight loss and alcohol consumption behaviours. *Journal of Health Psychology*.

- Avalos L, Tylka TL and Wood-Barcalow N (2005) The Body Appreciation Scale: Development and psychometric evaluation. *Body Image*.
- Baldwin MW and Dandeneau S (2005) Understanding and Modifying the Relational Schemas Underlying Insecurity. In: *Interpersonal cognition*.
- Brewin CR, Andrews B and Gotlib IH (1993) Psychopathology and Early Experience: A Reappraisal of Retrospective Reports. *Psychological Bulletin*.
- Bowlby J (1969) *Attachment and loss: Attachment (Vol. 1)*. *Attachment*.
- Bramston P, Pretty G and Chipuer H (2002) Unravelling subjective quality of life: An investigation of individual and community determinants. *Social Indicators Research*.
- Bucchianeri MM, Arikian AJ, Hannan PJ, et al. (2013) Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body Image*.
- Cummins RA (2005) Moving from the quality of life concept to a theory. *Journal of Intellectual Disability Research*.
- Cunha M, Martinho MI, Xavier AM, et al. (2013) 1405 – Early memories of positive emotions and its relationships to attachment styles, self-compassion and psychopathology in adolescence. *European Psychiatry*.
- Cunha M, Xavier A, Martinho MI, et al. (2014) Measuring positive emotional memories in adolescents: Psychometric properties and confirmatory factor analysis of the early memories of warmth and safeness scale. *International Journal of Psychology and Psychological Therapy*.
- Duarte C, Matos M, Stubbs RJ, et al. (2017) The impact of shame, self-criticism and social rank on eating behaviours in overweight and obese women participating in a weight management programme. *PLoS ONE*.
- Ferreira F, Mota JA and Duarte J (2012) Prevalência de excesso de peso e obesidade em estudantes adolescentes do distrito de Castelo Branco: um estudo centrado no índice de

massa corporal, perímetro da cintura e percentagem de massa gorda. *Revista Portuguesa de Saude Publica*.

Ferreira C, Silva C, Mendes AL, et al. (2018) How do warmth, safeness and connectedness-related memories and experiences explain disordered eating? *Eating and Weight Disorders*.

Gaspar T and Matos MG (2008) Qualidade de Vida em Crianças e Adolescentes Versão Portuguesa dos Instrumentos Kidscreen-52. *Behaviour*.

Gilbert P, McEwan K, Mitra R, et al. (2009) An exploration of different types of positive affect in students and patients with a bipolar disorder. *Clinical Neuropsychiatry*.

Goldfield GS, Moore C, Henderson K, et al. (2010) Body dissatisfaction, dietary restraint, depression, and weight status in adolescents. *Journal of School Health*.

Hair JF, Anderson RE, Tatham RL, et al. (1998) *Multivariate data analysis with readings (5nd ed.)*. Prentice-Hall, Upper Saddle River.

Hall GS (2015) Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education, Vol. 1.

Halliwel E (2015) Future directions for positive body image research. *Body Image*.

Helfert S and Warschburger P (2011) A prospective study on the impact of peer and parental pressure on body dissatisfaction in adolescent girls and boys. *Body Image*.

Hu LT and Bentler PM (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*.

Khodarahimi S, Hashim IHM and Mohd-Zaharim N (2016) Attachment styles, perceived stress and social support in a Malaysian young adults sample. *Psychologica Belgica*.

Kline RB (2011) Principles and practice of structural equation modeling: Third Edition. Structural Equation Modeling.

Lemoine JE, Konradsen H, Lunde Jensen A, et al. (2018) Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body Image*.

Mäkinen M, Puukko-Viertomies LR, Lindberg N, et al. (2012) Body dissatisfaction and body mass in girls and boys transitioning from early to mid-adolescence: Additional role of self-esteem and eating habits. *BMC Psychiatry*.

Marques A and de Matos MG (2016) Trends in prevalence of overweight and obesity: are Portuguese adolescents still increasing weight? *International Journal of Public Health*.

Marta-Simões J and Ferreira C (2020) Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and Weight Disorders*.

Marta-Simões J and Ferreira C (2019) Turning self-compassionate engagement into action: Impact on body appreciation among Portuguese women. *Journal of Contextual Behavioural Science*.

Marta-Simões J and Ferreira C (2020a) Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and Weight Disorders*.

Marta-Simões J and Ferreira C (2020b) The soothing-affiliation system and body appreciation: recollected and present affect. *Women and Health*.

Marta-Simões J, Ferreira C and Mendes AL (2016) Exploring the effect of external shame on body appreciation among Portuguese young adults: The role of self-compassion. *Eating Behaviours*.

Matos M, Gouveia JP and Duarte C (2015) Constructing a self protected against shame: The importance of warmth and safeness memories and feelings on the association between shame memories and depression. *International Journal of Psychology and Psychological Therapy*.

Miguel RR, Sousa R, Brazão N, Rijo D, Castilho P and Gilbert P (2019) *Psychometric properties and measurement invariance of the Social Safeness and Pleasure Scale in adolescent samples*.

Manuscript in preparation.

- Marta-Simões J and Ferreira C (2020) Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and Weight Disorders*.
- Odunlami GA (2017) PREDICTING ADOLESCENTS' QUALITY OF LIFE USING DISCRIMINANT ANALYSIS. *World scientific news*.
- Oliveira S, Ferreira C and Mendes AL (2017) Early memories of warmth and safeness and eating psychopathology: The mediating role of social safeness and body appreciation. *Psychologica*.
- Petroski EL, Pelegrini A and Glaner MF (2009) Body image dissatisfaction among rural and urban adolescents. *Motricidade*.
- Pinto C, Ferreira C, Mendes AL, et al. (2017) Social safeness and disordered eating: Exploring underlying mechanisms of body appreciation and inflexible eating. *Eating and Weight Disorders*.
- Ravens-Sieberer U, Auquier P, Erhart M, et al. (2007) The KIDSCREEN-27 quality of life measure for children and adolescents: Psychometric results from a cross-cultural survey in 13 European countries. *Quality of Life Research*.
- Ravens-Sieberer U, Gosh A, Erhart M, et al. (2006) *The KIDSCREEN questionnaires: Quality of life questionnaires for children and adolescents*. Lengerich.
- Reel J, Voelker D and Greenleaf C (2015) Weight status and body image perceptions in adolescents: current perspectives. *Adolescent Health, Medicine and Therapeutics*.
- Richter A, Gilbert P and McEwan K (2009) Development of an early memories of warmth and safeness scale and its relationship to psychopathology. *Psychology and Psychotherapy: Theory, Research and Practice*.
- Rodgers RF, Ganchou C, Franko DL, et al. (2012) Drive for muscularity and disordered eating among French adolescent boys: A sociocultural model. *Body Image*.

Rosewall JK, Gleaves DH and Latner JD (2018) An examination of risk factors that moderate the body dissatisfaction-eating pathology relationship among New Zealand adolescent girls. *Journal of Eating Disorders*.

Schaefer MK and Blodgett Salafia EH (2014) The connection of teasing by parents, siblings, and peers with girls' body dissatisfaction and boys' drive for muscularity: The role of social comparison as a mediator. *Eating Behaviours*.

Seiffge-Krenke I, Kiuru N and Nurmi JE (2010) Adolescents as 'producers of their own development': Correlates and consequences of the importance and attainment of developmental tasks. *European Journal of Developmental Psychology*.

Silva DAS, Nahas MV, de Sousa TF, et al. (2011) Prevalence and associated factors with body image dissatisfaction among adults in southern Brazil: A population-based study. *Body Image*.

Smolak L and Cash TF (2011) Future challenges for body image science, practice, and prevention. In: Cash TF and L. Smolak L (eds) *Body image: A handbook of science, practice, and prevention*. New York: Guilford Press, pp. 471-478.

Spano S (2004) *Stages of adolescent development. Research facts and findings*. Retrieved from http://www.actforyouth.net/resources/rf/rf_stages_0504.pdf

Tylka TL and Wood-Barcalow NL (2015) The body appreciation scale-2: Item refinement and psychometric evaluation. *Body Image*.

Vagos P, Ribeiro da Silva D, Brazão N, et al. (2017) The Early Memories of Warmth and Safeness Scale for adolescents: Cross-Sample Validation of the Complete and Brief Versions. *Clinical Psychology and Psychotherapy*.

Viejo C, Gómez-López M and Ortega-Ruiz R (2018) Adolescents' psychological well-being: A multidimensional measure. *International Journal of Environmental Research and Public Health*.

- Viner RM, Allen NB and Patton GC (2017) Puberty, Developmental Processes, and Health Interventions. In: *Disease Control Priorities, Third Edition (Volume 8): Child and Adolescent Health and Development*.
- Webb HJ, Zimmer-Gembeck MJ and Donovan CL (2014) The appearance culture between friends and adolescent appearance-based rejection sensitivity. *Journal of Adolescence*.
- Wheeler MD (2018) Physical changes of puberty. *Endocrinology and Metabolism Clinics of North America*.
- WHO Multicentre Growth Reference Study Group (2006). *WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development*. Geneva: World Health Organization.
- WHO Multicentre Growth Reference Study Group. (2006). *WHO child growth standards: length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: methods and development*. *WHO Child Growth Standards*.
- WHO (2007) Growth reference data for 5-19 years. *WHO*.
- WHO (2019) WHO | Adolescent development. *Adolescent Development*.
- Wood-Barcalow NL, Tylka TL and Augustus-Horvath CL (2010) 'But I Like My Body': Positive body image characteristics and a holistic model for young-adult women. *Body Image*.

S T U D Y V I I

Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life

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Paper under review

Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life

Joana Marta-Simões^a, Laura Verbena^b, Sara Oliveira^b, Tracy L. Tylka^c, and Cláudia Ferreira^a

^a CINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

^b Department of Brain and Behavioural Science, Faculty of Psychology, University of Pavia, Italy

^c Department of Psychology, The Ohio State University, Columbus and Marion Campuses, Columbus, Ohio, United States

Abstract

The first aim of this study was to validate the Functionality Appreciation Scale (FAS) for the Portuguese adult population. Secondly, this study aimed at exploring the suitability of a theoretical model associating self-compassion, body functionality, body appreciation and perceived quality of life in a sample of Italian and Portuguese adults.

The sample comprised 385 Italian and Portuguese adults. A Confirmatory Factor Analysis (CFA) was conducted in the sub-sample of Portuguese adults to validate the FAS. Descriptive, correlation and path analysis allowed the cross-national exploration of the proposed model.

Results of the CFA suggested the psychometric validity of the Portuguese version of the FAS. Path analysis' results highlighted the mediating role of body appreciation in the association of self-compassion and body functionality with quality of life. This model appeared to be invariant between Italians and Portuguese, explaining 45% of the variance of body appreciation, and 58%,

38% and 25% of the variances of psychological, physical, and social relation's dimensions of quality of life, respectively.

The importance of body functionality as a component of positive body image seems to be underlined by present data, i.e., along with self-compassion, body functionality seems to associate positively with body appreciation and perceived quality of life.

Highlights

- The FAS was validated for the Portuguese adult population;
- Body functionality and self-compassion associate positively with body appreciation;
- The model explains the variance of perceived quality of life;
- Invariant model between Italian and Portuguese adults.

Keywords: Compassion; Positive Body Image; Functionality Appreciation; Body Appreciation; Quality of Life; Cross-national Research

Introduction

Functionality appreciation is a novel concept defined as appreciating, respecting, and honouring the body for what it is capable of doing (Alleva et al., 2017). Specifically, functionality appreciation involves functions associated to (a) physical abilities (e.g., walking), (b) internal processes (e.g., digestion), (c) senses and perceptions (e.g., feeling relaxed), (d) creative activities (e.g., drawing), (e) communication (e.g., body language), and (f) self-care (e.g., showering; Alleva, et al., 2015). This concept goes beyond the awareness of body functionality, being associated, for instance, with gratitude, i.e., knowing that the body can run three miles vs. being grateful that the body can run three miles (Alleva et al., 2017). Also, although functionality appreciation is consistent with the broader conceptualization of positive body image (Tylka & Wood-Barcalow,

2015), it is a multifaceted construct and is not directly connected with physical appearance (Alleva & Tylka, 2021). Actually, the emphasis does not lay solely on what the body is capable of doing, but on the recognition, appreciation and gratitude towards what it is capable of doing (Alleva et al., 2017; Alleva, Martijn et al., 2015; Webb et al., 2015).

The investment in the study of functionality appreciation is considered very relevant for attaining an extensive understanding of body image. Its association with positive body image is well-documented (Frisén & Holmqvist, 2010; Wood-Barcalow et al., 2010), justifying its conceptualization as a central component of positive body image. Indeed, recent interventions to promote positive body image and healthy body-related behaviours have resorted to functionality appreciation (e.g., Alleva et al., 2018a; Alleva et al., 2018b). Functionality appreciation is thus considered a useful strategy for improving positive body image, as well as reducing negative body image, with data from controlled trials showing that cultivating functionality appreciation in women with negative body image leads to increased body appreciation and reduced body image dissatisfaction (Alleva et al., 2015; Alleva et al., 2014).

Considering that the study of positive body image is relatively recent, there is a global lack of suitable assessment measures. To overcome this issue, authors Alleva, Tylka and Kroon Van Diest (2017) created the Functionality Appreciation Scale (FAS). The original version of the FAS was considered an adequate tool to assess functionality appreciation, unique from existing positive body image measures, with sound psychometric properties and appropriate to use in research and in clinical settings. Several countries have adapted the FAS to different languages and populations and studied its psychometric properties. For instance, the Italian version of the FAS, validated by Cerea and colleagues (2021), was considered psychometrically valid, with potential to be applicable in future studies and interventions in the field of positive body image, in Italian-speaking populations. Regarding the Portuguese context, the only available validated Portuguese scale to assess adults' positive body image is the Body Appreciation Scale-2 (Marta-Simões et al., 2016). However, this scale does not comprise items to specifically evaluate

appreciation of one's own body functionality. Taking this into account, it seems pertinent to explore additional measures for the assessment of positive body image for Portuguese-speaking populations, and so the investment in the FAS validation for the Portuguese population seems to be of great utility.

Body appreciation is one of the most studied components of positive body image, and it is defined by an attitude of affection towards one's unique bodily characteristics (e.g., recognition of its positive qualities, and acceptance of imperfections), respect towards the body functions and health, and protection against media-promoted unrealistic and unhealthy body image ideals (Tylka & Wood-Barcalow, 2015). It has been negatively associated with several indicators of poor well-being and mental health, namely experiential avoidance and psychological inflexibility (Marta-Simões & Ferreira, 2019), external shame (Marta-Simões et al., 2016), body dissatisfaction (e.g., Casale et al., 2021), body and appearance self-conscious emotions (Rasmus & Rasmus, 2017), disordered eating symptoms (Casale et al., 2021; Marta-Simões & Ferreira, 2020) and depression symptoms (Marta-Simões et al., 2016). On the other hand, body appreciation has been found to associate positively with variables linked to psychological well-being and mental health. Some of them are self-esteem and life satisfaction (Casale et al., 2021), self-compassion (Marta-Simões & Ferreira, 2020), and perceived-quality of life in adolescents (Marta-Simões et al., 2020).

Self-compassion is defined as a particular attitude toward suffering that entails its recognition and motivation to deal with it, feeling moved by one's own suffering and responding with self-warmth, care and understanding, and considering that suffering is part of the shared Human experience (Neff & Germer, 2017). The study of the role of self-compassion in the area of body image has gained increasing recognition in terms of its relevance, as important associations of self-compassion with constructs associated with body image have been found. Specifically, self-compassion is considered a potential solution against negative body image and disordered eating behaviours (e.g., Ferreira et al., 2013) Regarding positive body image, it associates with

body appreciation, both in studies conducted in adults and in adolescents. Finally, self-directing compassion in times of suffering is also linked with positive indicators of health and well-being, namely general psychological health, satisfaction with life and positive affect (Veneziani et al., 2017), and positive social comparison (Castilho et al., 2015). It also presents negative correlations with variables associated with psychological dysfunction, such as psychopathological symptoms and shame (Castilho et al., 2015), and negative affect (Veneziani et al., 2017).

The present study divides into two different studies. The Study I aimed at validating the Functionality Appreciation Scale for the Portuguese adult population. The Study II aimed at exploring differences and similarities of the Functionality Appreciation Scale between two samples, one of Italian adults and the other of Portuguese adults. Specifically, the relationships between functionality appreciation and self-compassion, body appreciation and perceived quality of life are meant to be explored and the mediating role of body appreciation in the relationships of both self-compassion and functionality appreciation and three dimensions of quality of life (psychological, physical, and social relations) are aimed to be analysed.

Method

Participants

Two samples were used in this study. Study I used a sample composed of only Portuguese adults, while Study II used the same Portuguese adults and a sample of Italian adults.

Portuguese participants were 180, 74 men and 106 women. These participants were aged between 18 and 63, with a mean age of 32.92 ($SD = 10.76$). Most participants were Caucasian (91%). Regarding residence information, most participants habited in the centre region (86%), while 13% lived in the north of Portugal, 6% in the south and 1% in the islands. Sixty-six per cent reported that they lived in an urban area, 17% in a rural area and 17% in an urban/rural mixed area. Most participants were single (53%), 46% were married or in a civil union, 1% were divorced

or separated and 1% were widowed. In terms of occupation, 73% were employed, 20% were students, 6% were unemployed and 1% were retired. Regarding the level of education, 44% had a post-graduate degree (master's degree, Ph.D. or other postgraduation level), 34% had a higher education degree, 19% completed high school and 2% completed middle school. Regarding diet, most participants reported to have a Mediterranean diet (89%). Most participants reported not having any particular motif to choose a particular diet (81%), followed by health (12%) and appearance motifs (12%). While most participants had no food restrictions (77%), some participants restricted lactose from their diet (9%), and others avoided consuming alcohol and/or processed foods (9%). Another restriction reported was gluten, with 3% gluten-intolerant participants. Finally, for most participants the food restriction was not medically prescribed (79%), as for the rest of them it was (21%).

Italian participants were 205: 78 men, 123 women and 4 preferred not to report their gender. Participants were aged between 18 and 65, with a mean age was 35.29 ($SD = 13.52$). Most participants were Caucasian (83%). Regarding residence information, most participants habited in the south of Italy (59%), while 29% lived in the north, 10% in the centre and 2% in the islands. Fifty-four per cent reported that they lived in an urban area, 36% in an urban/rural mixed area and 10% in a rural area. Most participants were single (52%), 43% were married or in a civil union, and 5% were divorced or separated. In terms of occupation, 50% were employed, 34% were students, 14% were unemployed and 2% were retired. Regarding the level of education, 44% completed high school, 43% had a higher education degree, 8% had a postgraduate degree and 5% completed middle school. Regarding diet, most participants reported to have a Mediterranean diet (81%), 5% followed a combination of mediterranean and vegetarian diets, and 3% were strictly vegetarian. Most participants reported not having any particular motif to choose a particular diet (67%), followed by appearance (12%), health (8%) and ethical or moral motifs (7%). While most participants had no food restrictions (63%), some participants restricted lactose from their diet (7%), and others avoided consuming alcohol (7%), and processed foods

(6%). Another restriction reported was gluten, with 2% gluten-intolerant participants. Finally, for most participants the food restriction was not medically prescribed (81%), as for the rest of them it was (19%).

Between both samples (Italian and Portuguese adults) there were no statistically significant differences regarding age ($t_{(383)} = 1.88, p = .061$) and schooling years ($t_{(383)} = -1.74, p = .083$).

Measures

The Self-Compassion Scale (SCS; original version by Neff, 2003; Italian version by Veneziani et al., 2017; Portuguese version by Castilho et al., 2015) is a 26-items questionnaire measuring the various components of self-compassion. The scale is composed of six inter-correlated subscales: Self-Kindness, Self-Judgement, Common Humanity, Isolation, Mindfulness and Over-Identification. Responses to the items were given on a 5-point-Likert scale (from 1 = “almost never” to 5 = “almost always”). Subscale scores are computed by calculating the mean of subscale item responses. To compute a total self-compassion score, the negative subscale items - self-judgment, isolation, and over-identification - needed to be reversed scored and then we compute a total mean. In the present study two dimensions were compute: a positive dimension assessing self-compassion (SCS_SC), comprising the items of the self-kindness, common humanity and mindfulness subscales, and a negative dimension comprising the remaining items (Costa et al., 2016). For the purposes of this study only the positive dimension was used. The SCS has proved its sound psychometric characteristics (subscales' α values ranging from .69 to .78 in the Italian version, and a α of .91 for the self-compassion composite measure in the Portuguese version of the SCS).

The Functionality Appreciation Scale (FAS; original version by Alleva et al., 2017; Italian version by Cerea et al., 2021) is 7-items questionnaire for the measurement of the individual's appreciation of their body for what it can do and is capable of doing (i.e., functionality appreciation).

Respondents are asked to use a Likert-type scale, ranging from 1 (“strongly disagree”) to 5 “strongly agree”. The scoring was obtained by calculating the total mean of the items. Higher the scoring higher the functionality appreciation. The Italian version of the FAS was revealed to be a consistent and reliable measure of functionality appreciation (Cerea et al., 2021).

The Body Appreciation Scale-2 (BAS; original version by Tylka & Wood-Barcalow, 2015; Italian version by Casale et al., 2021; Portuguese version by Marta-Simões et al., 2016) was used to assess participants’ attitudes of acceptance, care, and respect towards their body characteristics as well as of rejection of media-promoted damaging beauty ideals. It comprises 10 items to be rated on a 5-point scale (1 = *Never* to 5 = *Always*). Higher scores in the BAS indicate higher body appreciation. Good psychometric properties were reported in the studies conducted with the Italian version ($\alpha = .89$ for men and $\alpha = .93$ for women) and the Portuguese version ($\alpha = .95$).

World Health Organization Quality of Life-BREF (WHOQOL-BREF; original version by WHOQOL Group, 1998; Italian version by De Girolamo et al., 2000; Portuguese version by Canavarro et al., 2007), is a measure developed by the World Health Organization used as an international and cross-cultural measure of perceived quality of life. It is composed of 26 items that explore a set of specific quality of life’s domains: physical health, psychological health, social relationships, and environment. Participants are asked to use a 5-point scale (0 = “Very dissatisfied” to 5 = “Very satisfied”), with higher scores indicating a higher perceived quality of life. In the present study only the psychological health (QOL_Psyc), physical health (QOL_Phys) and social relationships’ (QOL_SR) domains were used. The WHOQOL-BREF has shown to be a valid, consistent, and reliable measure, in both the Italian and Portuguese versions (α values from .65 to .80 among different subscales).

Procedures

Before any further procedure, approval from an independent Ethics and Deontology Committee. All data collection and other procedures were in accordance with ethical and deontological requirements inherent to scientific research.

Eligibility criteria to participate in the study were being aged between 18 years and 65, having Italian or Portuguese nationality. Participants' recruitment was conducted via email invitations and through social media (Facebook), between July and September of 2021. Participation invitations were e-mailed to researchers' personal contact lists and via Facebook, through their publication in groups whose members met the sex and age criteria for inclusion in the present study. The Exponential Non-Discriminative Snowball Sampling Method (e.g., Heckathorn, 2011) was then used to disseminate invitations to potential participants. Two versions of participation invitations were created, one in Italian and the other in Portuguese. Both started with a clarification of the purpose of the study, ethical questions, confidentiality, data protection and voluntary participation and an informed consent form. After selecting the consent to participate option, participants were redirected to an online version of the questionnaires. Because this study was conducted in adults of different nationalities, two versions of the online questionnaires were created, one in Italian, with questionnaires validated for the Italian population, and the other in Portuguese language, with questionnaires validated for the Portuguese language. Since the questionnaires were designed so that only complete participations were registered, and that only participants who fulfilled the inclusion criteria in the study were accepted, no participant was excluded from the sample, reaching a total sample of 385 participants.

Regarding the validation study of the FAS for the Portuguese adult population (Study I), the first procedure of the study was asking the authors of the original version of the FAS (Alleva et al., 2017) permission to use and validate the scale. After attaining permission, the scale was translated for the Portuguese language, by two Portuguese native speaker Clinical Psychologist

and Researchers who are proficient in English. Then, the translated scale was back translated to English by another Portuguese Clinical Psychologist and Researcher, also proficient in English. Consensus on the final version of the translated scale was reached after discussing the translations, backtranslations and the original scale.

Data Analysis

The analyses were conducted using the IBM SPSS Statistics for Windows (SPSS, version 25, Armonk, NY, USA) and the Analysis of Moment Structures (AMOS, version 25, Chicago, IL, USA).

In the Study I, data was collected and then transferred into SPSS Statistics to be analyzed. Firstly, in the sample of Portuguese adults, normal distribution of items was explored and confirmed by computing coefficients of skewness and kurtosis ($|Sk| < 3$ and $|Ku| < 10$) (Kline, 2016). The Mahalanobis distance (D^2) assessed the multivariate outliers of the items. Descriptive statistics were also conducted to explore the characteristics of the sample.

The FAS' structure adequacy was tested and confirmed through a Confirmatory Factor Analysis (CFA) using the software AMOS. The Maximum Likelihood estimation method was applied due to its robustness against departures from normality. A bootstrapping procedure of Bollen and Stine was used to achieve a precise estimation of standard errors, as reflected in p values and confidence intervals. Considering Nevitt and Hancock (2001) recommendations, bootstrap samples were set at 250 and the bias-corrected confidence interval was set at the 95% confidence level. The following goodness-of fit indices were used: normed chi-square ($\chi^2/d.f.$); with values below 5 indicating an adequate fit), the chi-square goodness-of-fit (χ^2 , a non-significant value indicates that the model has a good fit to empirical data, although this index is highly sensible to sample size); the Comparative Fit Index (CFI) and the Tucker and Lewis Index (TLI), both indicating an adequate fit when above .90 (Hu & Bentler, 1999). The Standardized Root Mean Square Residual (SRMR) was also analyzed, with values below .08 indicating an acceptable fit (Hu & Bentler, 1999). The local adjustment of the model was assessed by the items' individual

reliability and standardized factor weights. Values of standardized regression weights equal to or above .50 and squared multiple correlations equal to or above .25 indicate an adequate local adjustment of the model (Marôco, 2010).

Additionally, psychometric properties of the FAS were further examined. Internal consistency was analyzed through Cronbach's alpha and composite reliability, with values above .70 indicating acceptable reliability (Kline, 2016; Fornell & Larcker, 1981). To examine convergent validity, the average variance extraction (AVE) was calculated, with acceptable values above .50 (Fornell & Larcker, 1981). FAS's correlations with external variables (other relevant constructs, namely body appreciation, self-compassion and perceived quality of life) were analyzed by Pearson's correlation coefficients (Cohen et al., 2003). The analysis of the magnitudes of the results followed the recommendations of Cohen and colleagues (2003).

Regarding the Study II, descriptive statistics (e.g., means and standard deviations) were computed to explore the characteristics of the sample, which was composed of adults from both Italian and Portuguese nationalities. Associations between self-compassion, functionality appreciation, body appreciation and perceived quality of life were analysed through product-moment Pearson correlation analyses. These analyses were conducted using the software SPSS.

Then, to explore the hypothesis that body appreciation (endogenous mediator variable) acted as a mediator in the relationship between both self-compassion and functionality appreciation /exogenous variables) and three dimensions of perceived quality of life (endogenous variables), path analyses (inspection of assumed structural relations between the variables) were conducted using the software AMOS (v.22, SPSS Inc., Chicago, IL). The Maximum Likelihood estimation method was used to test the significance regression coefficients and to compute fit statistics (with 95% confidence interval). Chi-square tests were used to test significance of direct, indirect and total effects. The Bootstrap resampling method was used to test the significance of the mediational paths (with 5000 Bootstrap samples and 95% confidence intervals; Kline, 2016). Several goodness-of-fit measures were used to assess the adjustment of the tested model to

empirical data: Normed Chi-Square ($\chi^2/d.f.$; with values below 5 indicating an adequate fit), the Chi-Square (χ^2 ; with a non-significant p value indicating a good fit; Hair, 2010 Comparative Fit Index (CFI) and Tucker Lewis Index (TLI; good fit when above .90, Hu & Bentler, 1999); and Root-Mean Square Error of Approximation (RMSEA) with 95% confidence interval, which indicates that the model is well-fitted when below .06, with a non-significant p close value.

Results

Study I

Preliminary Analysis

A preliminary analysis on FAS's items was performed to check for evidence of non-normality, univariate and multivariate outliers, and missing data. No missing values were found, absolute values of skewness varied from -1.53 (item 2) to -1.01 (item 6), and absolute values of kurtosis ranged from 1.23 (item 5) to 3.25 (item 5), indicating a normal distribution (Kline, 2016). However, results revealed that data violated the normality assumption (c.r. = 38.44; Byrne, 2010). Based upon the Mahalanobis distance statistics, five multivariate outliers were identified from the sample. Nevertheless, there were no significant differences in results with and without outliers, and so outliers were not removed from the sample (Hair, 2010).

Confirmatory Factor Analysis

A Confirmatory Factor Analysis (CFA) of FAS was performed to examine and confirm the scale's structure and adequacy. The Maximum Likelihood estimation was used, as well as a bootstrapping procedure of Bollen and Stine was employed to adjust the p value of the chi-square statistic. Results indicated that the model adjusted to data adequately ($\chi^2/d.f. = 3.77$; $\chi^2_{(40)} = 52.80$, $p < .001$; B-S $p = .060$; CFI = .97; TLI = .95; SRMR = .03).

The analysis of local adjustment indices revealed that all items presented SRW values above .50 and SMC values above .25. The FAS thus seems to present both adequate global and local adjustments (see Table 1).

Table 1. FAS' items' means (*M*), standard deviations (*SD*), Cronbach's alpha if item deleted, standardized regression weights (SRW), squared multiple correlations (SMC), and composite reliability (CR) (*N* = 180).

FAS			
α total = .95; CR = .95			
Items	<i>M</i> (<i>SD</i>)	SRW	SMC
1. I appreciate my body for what it is capable of doing.	4.15 (.78)	.82	.80
2. I am grateful for the health of my body, even if it isn't always as healthy as I would like it to be.	4.30 (.82)	.79	.74
3. I appreciate that my body allows me to communicate and interact with others.	4.36 (.75)	.86	.82
4. I acknowledge and appreciate when my body feels good and/or relaxed.	4.40 (.71)	.78	.61
5. I am grateful that my body enables me to engage in activities that I enjoy or find important.	4.36 (.78)	.91	.74
6. I feel that my body does so much for me.	4.17 (.85)	.86	.62
7. I respect my body for the functions that it performs.	4.34 (.76)	.90	.67

Psychometric Properties

The psychometric properties of the scale were analyzed in the same sample of Portuguese adults. The FAS presented a Cronbach's alpha of .95, revealing a good internal consistency (Kline, 2016). The removal of any of these items would not result in an increase of the internal consistency of the scale (see Table 2). The value for composite reliability was .95, which indicated that the FAS presented construct reliability (Fornell & Larcker, 1981) and the value of average variance extracted was .72, which demonstrated that the scale presented convergent validity.

Validity in Relation to External Variables

To analyze FAS's relationship with other variables, Pearson correlation coefficients (Cohen et al., 2003) were estimated. Results showed that FAS (see Table 2, upper triangle) was positively associated with body appreciation, another measure of positive body image, with a strong magnitude correlation. It also correlated positively with self-compassion (with a moderate-magnitude association) and with psychological perceived quality of life (with a strong-magnitude association).

Study II

Descriptive and correlation analyses

Descriptive and correlation analyses' results are presented in Table 2.

Regarding correlation analyses in the Italian subsample, all measures presented moderate to strong magnitude positive associations between each other. The same results appeared in the Portuguese subsample, with all measures correlating positively with each other. Magnitudes of the correlations were from borderline moderate ($r = .28$ and $r = .29$) to strong.

Table 2. Descriptives for the total sample ($N = 385$); lower triangle comprises correlations in the Italian subsample ($n = 205$) and the upper triangle comprises correlations in the Portuguese subsample ($n = 180$).

	α	$M(SD)$	1	2	3	4	5	6
1. SCS_SC	.92		-	.40 ^{***}	.49 ^{***}	.48 ^{***}	.41 ^{***}	.29 ^{***}
2. FAS	.93		.40 ^{***}	-	.55 ^{***}	.38 ^{***}	.45 ^{***}	.28 ^{***}
3. BAS	.95		.51 ^{***}	.59 ^{***}	-	.67 ^{***}	.50 ^{***}	.38 ^{***}
4. QoL_Psych	.88		.52 ^{***}	.52 ^{***}	.72 ^{***}	-	.67 ^{***}	.57 ^{***}
5. QoL_Phys	.61		.37 ^{***}	.51 ^{***}	.49 ^{***}	.71 ^{***}	-	.39 ^{***}
6. QoL_SRel	.80		.35 ^{***}	.30 ^{***}	.43 ^{***}	.60 ^{***}	.54 ^{***}	-

Note. SCS_SC = Self-Compassion Scale (Self-compassion dimension); FAS = Functionality Appreciation Scale; BAS = Body Appreciation Scale; QoL_Psych = The WHOQOL-Bref (Psychological Quality of life dimension); QoL_Phys = The WHOQOL-Bref (Physical Quality of life dimension); QoL_SRel = The WHOQOL-Bref (Social Relations Quality of life dimension)

* $p < .050$; ** $p < .010$; *** $p < .001$.

Path and multigroup analyses

One of the main aims of the present study was to test a path model hypothesizing that body appreciation would function as a mediator of the relationships between self-compassion and functionality appreciation with three dimensions of perceived quality of life, in Italian and Portuguese adults.

The path model was firstly tested in its fully saturated version, i.e., with 27 parameters and zero degrees of freedom. The fully saturated model explained 58%, 39% and 25% of the variances of psychological, physical, and social relationships dimensions of quality of life, respectively. Nonetheless, this model presented two non-significant paths which were eliminated, and the

model was readjusted. The first path to be removed was the direct effect of functionality appreciation on the social relationships dimension of quality of life ($b_{FAS} = 1.617$; $SE_b = 1.822$; $Z = .888$; $p = .375$), and then was the direct effect of functionality appreciation on psychological quality of life ($\beta_{FAS} = .938$; $SE_b = .971$; $Z = .965$; $p = .334$).

The readjusted and final model, with all paths statistically significant, presented an adequate fit to empirical data: $\chi^2_{(2)} = 1.718$, $\chi^2/d.f. = .859$, $p = .424$; CFI = 1.000; NFI = .999; TLI = 1.002; RMSEA = .000, $p = .691$, 95% CI = .000 to .097. This model explained 45% of the variance of body appreciation, and 58%, 38% and 25% of the variances of psychological, physical, and social relationships dimensions of quality of life, respectively.

Self-compassion revealed to have a direct effect and positive on body appreciation ($\beta = .330$; $b_{SCS} = .383$; $SE_b = .049$; $Z = 7.878$; $p < .001$), was well as on all dimensions of quality of life, specifically psychological quality of life ($\beta = .171$; $b_{SCS} = 4.321$; $SE_b = .983$; $Z = 4.396$; $p < .001$), physical quality of life ($\beta = .130$; $b_{SCS} = 2.799$; $SE_b = 1.024$; $Z = 2.734$; $p < .010$), and social relationships quality of life ($\beta = .148$; $b_{SSPS} = 4.629$; $SE_b = 1.621$; $Z = 2.856$; $p < .010$). The positive association between self-compassion and the dimensions of quality of life was also indirect, i.e., mediated by body appreciation (psychological quality of life: $\beta = .217$; 95% CI = .154 to .284; $p < .001$; physical quality of life: $\beta = .127$; 95% CI = .082 to .179; $p < .001$; and social relationships quality of life: $\beta = .134$; 95% CI = .088 to .190; $p < .001$).

Functionality appreciation had a direct and positive effect on body appreciation ($\beta = .458$; $b_{FAS} = .554$; $SE_b = .051$; $Z = 10.915$; $p < .001$), and on physical quality of life ($\beta = .210$; $b_{FAS} = 4.733$; $SE_b = .909$; $Z = 5.207$; $p < .001$). Also, functionality appreciation associated indirectly and positively with all dimensions of quality of life, through the effects of body appreciation (psychological quality of life: $\beta = .301$; 95% CI = .222 to .379; $p < .001$; physical quality of life: $\beta = .176$; 95% CI = .115 to .248; $p < .001$; and social relationships quality of life: $\beta = .186$; 95% CI = .122 to .256; $p < .001$).

Body appreciation was directly and positively associated with psychological quality of life ($\beta = .659$; $b_{BAS} = 14.393$; $SE_b = .848$; $Z = 16.970$; $p < .001$), physical quality of life ($\beta = .385$; $b_{BAS} = 7.163$; $SE_b = .958$; $Z = 7.478$; $p < .001$), and social relationships dimension of quality of life ($\beta = .407$; $b_{BAS} = 10.966$; $SE_b = 1.398$; $Z = 7.843$; $p < .001$).

A multi-group analysis examined the model's invariance for Italian and Portuguese adults. Specifically, we computed a comparison between an invariant model, in which the factor loadings were not specified to vary between Italians and Portuguese, and the variant model, in which the factor loadings were specified to vary between Italians and Portuguese. The comparison was not significant ($\chi^2_{(9)} = 5.137$, $p = .822$), indicating nation invariance of the model.

In conclusion, path analysis' results indicate that, for both Italian and Portuguese adults, self-compassion, and functionality appreciation's effects on perceived quality of life are mediated by body appreciation. These associations are positive, indicating that the higher self-compassion and functionality appreciation's scores are, the greater perceived quality of life is, through high levels of body appreciation.

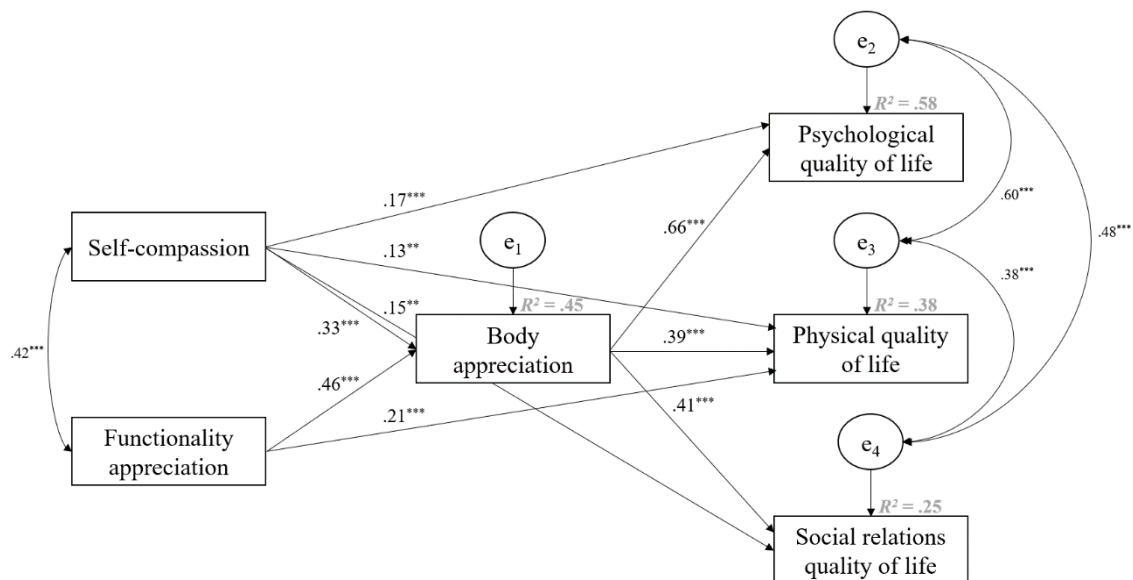


Figure 1. Final path model. Standardized path coefficients among variables are presented. All path coefficients are significant at the .050 level.

** $p < .01$; *** $p < .001$.

Discussion

In the last few decades, research in the field of body image has shifted its focus to the study of positive and adaptive factors that may contribute to a healthy relationship with one's own perceived bodily characteristics. One important contribution for the study of positive body image is the creation and validation of specific assessment measures. Considering the main aim of the present study, that was to explore correlates and associations of one measure of positive body image – functionality appreciation – in both Italian and Portuguese adults, and that this measure was not available in the Portuguese language, the first aim of the present study was to validate the Functionality Appreciation Scale (FAS) for the Portuguese adult population. Additionally, the present study also intended to explore a path model which hypothesized that self-compassion and functionality appreciation are both positively associated with body appreciation, and that the three associate positively with psychological, physical, and social relations' quality of life. This path model's adequacy was tested in and compared between Italian and Portuguese adults.

In the Study I, the FAS' structure adequacy was tested and confirmed through a CFA, and the psychometric properties of the FAS were further examined. Internal consistency and correlations with external variables (body appreciation, self-compassion, and perceived quality of life) were also analyzed. These analyses were conducted using a mixed-gender sample of Portuguese adults, aged between 18 and 65. The structure of the FAS was corroborated in the CFA, with global and local adjustment indices indicating the suitability of the FAS' factorial structure. Validity in relation to external variables was also assessed with correlational analysis demonstrating that FAS was positively associated with body appreciation, self-compassion and perceived quality of life. These were expected associations, taking into account that body functionality is considered one of the components of positive body image, thus being logical its association with body appreciation (e.g., Alleva et al., 2018a; Alleva et al., 2018b). Also, the

association with self-compassion and quality of life was expected taking into consideration the association of another component of positive body image, that is body appreciation, with the same variables (Marta-Simões & Ferreira, 2020; Marta-Simões et al., 2020). Overall, the data presented here empirically support the assumption that the Portuguese version of the FAS presents robust psychometric qualities.

The Study II intended to explore the suitability of a proposed theoretical model that considered that self-compassion and functionality appreciation would associate positively with body appreciation, and that these variables would associate positively with three dimensions of perceived quality of life. This sub-study started with the exploration of the characteristics of our sample. Results pointed that the used sample was considered to be equivalent in terms of age and schooling years, but each nationality had a lot of specificities regarding their chosen diets, food restrictions, motifs for food restriction, etc. Then, correlations were computed separately for each nationality, and results showed that in both subsamples all measures presented moderate to strong magnitude positive associations between each other. Regarding path analyses, results were as expected. Firstly, self-compassion associated positively with all the variables in study. Specifically, self-compassion seems to be a direct positive predictor of body appreciation (e.g., Marta-Simões & Ferreira, 2020), and also of the three studied components of perceived quality of life (e.g., Marta-Simões et al., 2020). Thus, it seems that Italian and Portuguese adults that are capable of recognizing their own suffering and not avoiding it, self-directing warmth, understanding, and considering suffering and defeat as part of the Human shared experience, tend to be appreciative and protective of their unique bodily characteristics, and to perceive a good quality of life. Also, regarding the association of self-compassion with quality of life's dimensions, body appreciation seems to function as a mediator. When self-compassion is higher, body appreciation also tends to be increased, with a consequent reflection on higher levels of perceived of quality of life. Secondly, regarding functionality appreciation, these variables revealed to be directly and strongly associated with body appreciation, also a

component of positive body image. This is a well-known association (Alleva et al., 2018a; Alleva et al., 2018b), stating that appreciating the body for what it is able to do associated directly with appreciating and caring for the characteristics of appearance, and protecting the health of the body and also from the malignant media-promoted influences. Then, functionality appreciation was only directly associated with the physical dimension of the perceived quality of life. This result was also expected and can be understood given that functionality appreciation holds a strong connection with one's perception about bodily functions, skills and abilities, and so does the perception of physical quality of life (e.g., Alleva, et al., 2015). One interesting result was that body appreciation appears to be a mediator in the associations of functionality appreciation with both psychological quality of life and social relations quality of life. These results may entail that appreciating one's body characteristics and holding a warm and caring attitude toward the body (body appreciation) may contribute for the positive association between functionality appreciation and these two dimensions of quality of life. Specifically, Italian and Portuguese adults who appreciate their bodies for what they can do, seem to exhibit higher levels of body appreciation and, consequently, perceive a better quality of life in terms of psychological health and social relationships. Finally, it seems that the studied model is adequate for both Italian and Portuguese nationalities. Specifically, for both of them, body appreciation functions as a mediator in the association of self-compassion and functionality appreciation with perceived quality of life. These results enhance the importance of establishing a positive body image, and of self-compassion, for several instances of one's quality of life.

Limitations and future directions

Regarding Study I, although our data seems to provide important indicators of the suitability of the Portuguese version of the FAS, future studies should investigate the structure and reliability of this scale in other samples (e.g., adolescents, older people, people with specific disabilities). Also, the temporal stability and predictive validity of the FAS were not explored in our sample, and future studies should investigate these properties. Finally, the association of the

FAS with external measures was only explored with other positive measures, thus upcoming studies should explore the association with other measures, such as body image dissatisfaction, body image shame, etc. Regarding Study II, the use of a cross-sectional design limits any conclusions about the directionality of relationships in the model, and so prospective studies using longitudinal data are necessary. Also, the use of self-report measures is sensitive to measurement error and social desirability bias, and so future studies should consider other assessment tools such as interviews. Finally, since our outcome measures are multidetermined, other factors contributing to body appreciation and perceived quality of life should be considered and explored in future studies.

Implications

The present study contributed for the validation of one assessment measure of positive body image, the Functionality Appreciation Scale, for the Portuguese adult population. Since only the Body Appreciation Scale was adapted for this specific population, and this measure did not contain specific questions on functionality appreciation, future studies of positive body image indicators in Portuguese people may benefit of the availability of the validated version of the FAS. By using the FAS, upcoming studies can elucidate the factors associated with positive body image in Portuguese adults and provide important insights for the promotion of adaptive psychological functioning, and prevention of body-image related disturbances. Moreover, the second part of the present study explored a specific model that hypothesized that along with functionality appreciation, self-compassion may contribute for higher levels of body appreciation, and that all these factors may be associated with higher levels of perceived quality of life. These data add to literature by underlining the importance of promoting self-compassion as an adaptive strategy to deal with suffering, and also the pertinence of promoting the recognition and appreciation of the body in terms of its functions, competences and abilities, rather than focusing only on its appearance-related aspects. Regarding the last contribution, an emphasis on body

functionality may be important to promote positive body image and well-being in specific populations, such as people with physical disability or deformities.

Conclusion

Overall, data of the present study appear to reinforce the importance of functionality appreciation as a component of positive body image. Also, it seems to underline the importance of cultivating a kind and understanding relationship with oneself in times of suffering, with important implications in the relationship established with one's perceived bodily characteristics and quality of life.

Conflict of interest: All authors have no conflicts of interest to report.

Ethical compliance: All procedures performed in studies involving Human participants were in accordance with the ethical standards of the institutional committee and national institutions, and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants involved in the study.

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References

- Alleva, J. M., & Tylka, T. L. (2021). Body functionality: A review of the literature. *Body Image, 36*, 149-171. <https://doi.org/10.1016/j.bodyim.2020.11.006>
- Alleva, J. M., Diedrichs, P. C., Halliwell, E., Martijn, C., Stuijzand, B. G., Treneman-Evans, G., & Rumsey, N. (2018a). A randomised-controlled trial investigating potential underlying mechanisms of a functionality-based approach to improving women's body image. *Body image, 25*, 85–96. <https://doi.org/10.1016/j.bodyim.2018.02.009>
- Alleva, J. M., Diedrichs, P. C., Halliwell, E., Peters, M. L., Dures, E., Stuijzand, B. G., & Rumsey, N. (2018b). More than my RA: A randomized trial investigating body image improvement among women with rheumatoid arthritis using a functionality-focused intervention program. *Journal of Consulting and Clinical Psychology, 86*(8), 666. <https://doi.org/10.1037/ccp0000317>
- Alleva, J. M., Martijn, C., Jansen, A., & Nederkoorn, C. (2014). Body language: Affecting body satisfaction by describing the body in functionality terms. *Psychology of Women Quarterly, 38*(2), 181–196. <https://doi.org/10.1177/0361684313507897>
- Alleva, J. M., Martijn, C., Van Breukelen, G. J., Jansen, A., & Karos, K. (2015). Expand Your Horizon: A programme that improves body image and reduces self-objectification by training women to focus on body functionality. *Body image, 15*, 81-89. <https://doi.org/10.1016/j.bodyim.2015.07.001>.
- Alleva, J. M., Tylka, T. L., & Kroon Van Diest, A. M. (2017). The Functionality Appreciation Scale (FAS): Development and psychometric evaluation in U.S. community women and men. *Body Image, 23*, 28–44. <https://doi.org/10.1016/j.bodyim.2017.07.008>
- Byrne, B. M. (2010). *Structural equation modeling with Amos: Basic concepts, applications, and programming* (2nd Ed.). Taylor and Francis Group.
- Canavarro, M. C., Simões, M. R., Vaz Serra, A., Pereira, M., Rijo, D., Quartilho, M. J., & Carona, C. (2007). Instrumento de avaliação da qualidade de vida da Organização Mundial de Saúde:

WHOQOL-Bref. *Avaliação psicológica: Instrumentos validados para a população portuguesa*, 3, 77-100.

Casale, S., Prostamo, A., Giovannetti, S., & Fioravanti, G. (2021). Translation and validation of an Italian version of the Body Appreciation Scale-2. *Body Image*, 37, 1-5. <https://doi.org/10.1016/j.bodyim.2021.01.005>

Castilho, P., Pinto-Gouveia, J., & Duarte, J. (2015). Evaluating the multifactor structure of the long and short versions of the self-compassion scale in a clinical sample. *Journal of clinical psychology*, 71(9), 856-870. <https://doi.org/10.1002/jclp.22187>

Cerea, S., Todd, J., Ghisi, M., Mancin, P., & Swami, V. (2021). Psychometric Properties of an Italian Translation of the Functionality Appreciation Scale (FAS). *Body Image*, 38, 210-218. <https://doi.org/10.1016/j.bodyim.2021.04.007>.

Cohen, J., Cohen, P., West, S., & Aiken, L. (2003). *Applied multiple regression/correlation analysis for the behavioural sciences* (3rd Ed.). New Jersey: Lawrence Erlbaum Associates.

Costa, J., Marôco, J., Pinto-Gouveia, J., Ferreira, C., & Castilho, P. (2016). Validation of the psychometric properties of the Self-Compassion Scale. Testing the factorial validity and factorial invariance of the measure among borderline personality disorder, anxiety disorder, eating disorder and general populations. *Clinical psychology & psychotherapy*, 23(5), 460-468. <https://doi.org/10.1002/cpp.1974>

De Girolamo, G., Rucci, P., Scocco, P., Becchi, A., Coppa, F., D'Addario, A., Darú, E., De Leo, D., Galassi, L., Mangelli, L., Marson, C., Neri, G., Soldani, L. (2000). Quality of life assessment: validation of the Italian version of the WHOQOL-Brief. *Epidemiol Psichiatr Soc.*, 9(1), 45-55. <https://doi.org/10.1017/s1121189x00007740>.

De Girolamo, G., Rucci, P., Scocco, P., Becchi, A., Coppa, F., D'Addario, A., Darú, E., De Leo, D., Galassi, L., Mangelli, L., Marson, C., Neri, G., & Soldani, L. (2000). La valutazione della qualità della vita: validazione del WHOQOL-Breve [Quality of life assessment: validation

- of the Italian version of the WHOQOL-Brief]. *Epidemiologia e psichiatria sociale*, 9(1), 45–55. <https://doi.org/10.1017/s1121189x00007740>
- Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (2013). Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. *Eating behaviours*, 14(2), 207–210. <https://doi.org/10.1016/j.eatbeh.2013.01.005>
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39–50.
- Frisén, A., & Holmqvist, K. (2010). What characterizes early adolescents with a positive body image? A qualitative investigation of Swedish girls and boys. *Body image*, 7(3), 205–212. <https://doi.org/10.1016/j.bodyim.2010.04.001>
- Hair, J. (2010). *Multivariate Data Analysis* (7th Ed.). Prentice Hall.
- Heckathorn, D. D. (2011). Comment: Snowball versus Respondent-Driven Sampling. *Sociological methodology*, 41(1), 355–366. <https://doi.org/10.1111/j.1467-9531.2011.01244.x>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Kline, R. B. (2016). *Methodology in the social sciences. Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Marôco, J. (2010). *Análise de equações estruturais*. Lisboa, Portugal.
- Marta-Simões, J., & Ferreira, C. (2019). Turning self-compassionate engagement into action: impact on body appreciation among Portuguese women. *Journal of Contextual Behavioural Science*, 11, 21–26. <https://doi.org/10.1016/j.jcbs.2018.11.004>
- Marta-Simões, J., & Ferreira, C. (2020). Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, 25(2), 399–406. <https://doi.org/10.1007/s40519-018-0612-0>

- Marta-Simões, J., Ferreira, C., & Mendes, A. L. (2016). Exploring the effect of external shame on body appreciation among Portuguese young adults: The role of self-compassion. *Eating behaviours*, 23, 174–179. <https://doi.org/10.1016/j.eatbeh.2016.10.006>
- Marta-Simões, J., Mendes, A. L., Trindade, I. A., Oliveira, S., & Ferreira, C. (2016). Validation of the Body Appreciation Scale-2 for Portuguese women [abstract proceeding]. *BMC Health Services Research*, 16, 82, 92. <https://doi.org/10.1186/s12913-016-1423-5> <http://hdl.handle.net/10316/47079>
- Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2020). Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents' well-being. *Journal of Health Psychology*. <https://doi.org/10.1177/1359105320953463>
- Neff, K. D. & Germer, C. (2017). Self-Compassion and Psychological Wellbeing. In J. Doty (Ed.), *Oxford Handbook of Compassion Science*. Oxford University Press.
- Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250. <https://doi.org/10.1080/15298860309027>.
- Nevitt, J., & Hancock, G. (2001). Performance of bootstrapping approaches to model test statistics and parameter standard error estimation in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, 8(3), 353–377. https://doi.org/10.1207/s15328007sem0803_2
- Rasmus, M., & Rasmus, W. (2017). Evaluating the psychometric properties of the Polish version of the Body Appreciation Scale-2. *Body image*, 23, 45–49. <https://doi.org/10.1016/j.bodyim.2017.07.004>
- Tylka, T. L., & Wood-Barcalow, N. L. (2015). The Body Appreciation Scale-2: Item refinement and psychometric evaluation. *Body Image*, 12, 53–67. <https://doi.org/10.1016/j.bodyim.2014.09.006>

- Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body image, 14*, 118-129. <https://doi.org/10.1016/j.bodyim.2015.04.001>.
- Veneziani, C. A., Fuochi, G., & Voci, A. (2017). Self-compassion as a healthy attitude toward the self: Factorial and construct validity in an Italian sample. *Personality and Individual Differences, 119*, 60-68. <https://doi.org/10.1016/j.paid.2017.06.028>
- Webb, J. B., Wood-Barcalow, N. L., & Tylka, T. L. (2015). Assessing positive body image: Contemporary approaches and future directions. *Body image, 14*, 130-145. <https://doi.org/10.1016/j.bodyim.2015.03.010>
- Whoqol Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological medicine, 28*(3), 551-558.
- Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). "But I Like My Body": Positive body image characteristics and a holistic model for young-adult women. *Body image, 7*(2), 106–116. <https://doi.org/10.1016/j.bodyim.2010.01.001>

3. THE TEST OF EFFICACY OF THE #KindGirlsInAction
PROGRAMME

Empirical study VIII

STUDY VIII

Promoting adaptive psychological processes, social safeness, and
body appreciation in female adolescents:

Results from the #KindGirlsInACTion Program controlled trial

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Promoting adaptive psychological processes, social safeness, and body appreciation in female adolescents: Results from the #KindGirlsInACTion Program controlled trial

Joana Marta-Simões^a, , Tracy L. Tylka^b, and Cláudia Ferreira^a

^a CINEICC – Center for Research in Neuropsychology and Cognitive and Behavioural Intervention, University of Coimbra, Portugal

^b Department of Psychology, The Ohio State University, Columbus and Marion Campuses, Columbus, Ohio, United States

Abstract

The present study aimed to determine whether a novel intervention, the #KindGirlsInACTion program, would decrease psychological inflexibility and improve female adolescents' reported self-compassion, social safeness and pleasure and body appreciation.

This controlled trial comprised an intervention group ($n = 52$) and a control group ($n = 61$). Both groups completed questionnaires to measure psychological inflexibility, self-compassion, social safeness and pleasure and body appreciation, at baseline (M0), post-intervention (M1) and at a 3-months follow-up assessment (M2). Treatment participants attended the 9-week #KindGirlsInACTion, while the control group did not receive any intervention. Treatment effects were tested through a 3 X 2 mixed ANOVA (group level) and through Reliable Change Index (RCI; individual level).

Significant time x condition effects were observed for self-compassion, social safeness, and body appreciation, with small to medium effect sizes. RCIs pointed that the intervention group showed a high percentage of reliable improvement from M0 to M1, and between M1 and

M2, while the control group showed a high percentage of reliable deterioration, with moderate effect sizes.

This study offered evidence for the efficacy of the #KindGirlsInAction program, suggesting that interventions that promote self-compassion abilities and the establishment of caring, understanding and trusting relationships in one's close social context may have an effect in the promotion of positive body image in adolescent girls. The promotion of positive body image is believed to have a positive impact in well-being and to be a powerful means to prevent body image and eating-related disorders.

Keywords: compassion focused therapy; group psychotherapeutic interventions; adolescence; prevention program; positive body image

Introduction

Body image defines as a subjective perception of one's own body, which is not directly associated with how the body actually looks (Alleva et al., 2015). It is a complex construct comprising thoughts and evaluations (cognitive components; how people think about their bodies), perceptions (perceptual component; how people perceive or "see" their bodies regardless of its actual appearance), feelings (affective components; how people feel about their bodies), and behaviors (behavioral components; actions performed by people to check on or alter their bodies) (Cash & Pruzinsky, 1990). Specifically, body image mainly incorporates body size estimation, evaluation of body attractiveness, and emotions associated with body shape and size (Grogan, 2016). The bulk of the studies on body image focus on negative body image (Cash & Smolak, 2011), that is the dissatisfaction with the body and body parts, and appearance, and associated behaviors, such as frequent checking, weighing or avoidance of situations of body-exposure (Menzel et al., 2011).

Adolescents are a specific age group that is considered particularly vulnerable to body

dissatisfaction because of the biopsychosocial changes they experience (Clay et al., 2005). Moreover, adolescent girls are considered to be at particular risk for body dissatisfaction (e.g., Neumark-Sztainer et al., 2002) and subsequent mental distress (Holsen et al., 2001), eating disorders and disordered eating behaviors (Stice, 2001; The McKnight Investigators, 2003). These associations justify the need to intervene with adolescents to address body image concerns and prevent its related negative consequences (e.g., Carrard et al., 2019; Voelker et al., 2015). Although most of the research associated with body image was centered on negative body image (understanding, intervening with and preventing; Smolak & Cash, 2011) with clear important implications, recent findings have pointed the importance of interventions focused on positive body image. Investing in positive body image research is considered a potential means to go beyond the reduction of negative symptoms towards optimal functioning, effective and lasting intervention effects and prevention of body image and eating-related difficulties (Tylka, 2011; Smolak & Cash, 2011; Voelker et al., 2015).

Positive body image is defined as the prevalence of feelings of appreciation and respect towards one's own body (e.g., Holmqvist & Frisé, 2012), i.e., admiration for the appearance and functionality of the body, the capacity of selecting body-image related information based on the intention of protecting the body, having a broad perspective of beauty, and avoiding harmful body-concealing behaviors (Wood-Barcalow et al., 2010). It is a distinct construct from negative body image, i.e., both constructs do not stand on opposite ends of a continuum, and reducing negative body image does not result in the increase of positive body image (Tylka & Wood-Barcalow, 2015). Actually, negative and positive body image are two different constructs that are negatively correlated (e.g., Avalos et al., 2005; Tylka, 2011). One of the most studied positive body image components is body appreciation, that is an attitude of acceptance and respect in relation to the body, having a positive and satisfactory opinion about one's own body and rejecting the society and media-promoted ideals of beauty (Avalos et al., 2005). Several factors have been identified to associate positively with body appreciation. For instance, body appreciation is

associated with and may derive from having a critical view of body image standards that are promoted by the media, being embed in a supportive and unconditionally accepting environment of family and friends and being able to emphasize inner strengths and qualities as an alternative of focusing on appearance (Tylka, 2011; Wood-Barcalow et al., 2010). These seem to justify that strengths-based exercises, gratitude cultivation, and improving the quality of relationships are becoming means to promote body appreciation in body image interventions (Tylka & Wood-Barcalow, 2015). Although there are not extensive data on the effectiveness of positive body image promotion programs, the importance of cultivating this set of attitudes lays on its association with various outcomes: the enhancement of psychological well-being, and of the engagement in healthy behaviors, and a negative association with body shame and surveillance, and drive for thinness (Avalos et al., 2005). Moreover, it seems pertinent to develop positive body image promotion programs specifically designed for adolescents given that the underpinnings of positive body image patterns are built and established during adolescence (Fenton et al., 2010).

Considering the lack of empirically validated programs to promote positive body image in adolescents, the #KindGirlsInAction Program was developed (Mendes et al., 2022). The #KindGirlsInAction is a school-based intervention program, specifically designed and adapted for adolescent girls that aimed at promoting an improvement in body image and in interpersonal relationships, through the cultivation of self-compassion, and psychological flexibility (especially life chosen values-based actions), and the practice of mindfulness meditations. This program was believed to also have a positive impact on the well-being of female adolescents, and in the prevention of body image and eating-related difficulties. To note, this program did not directly cover the themes of body image and eating behaviors, although it is a positive body image program. This approach is supported by Stice and Shaw's (2004) meta-analysis which suggests that eating disorders' prevention programs should not be presented as eating disorders interventions.

The #KindGirlsInACTion focused on the development of adaptive emotion regulation mechanisms and psychological processes, through the cultivation of self-compassion, psychological flexibility, and the practice of mindfulness. Self-compassion and psychological flexibility are adaptive strategies to deal with psychological suffering that have positively been associated with body appreciation in several studies conducted in both female adults and adolescents (Homan & Tylka, 2015; Marta-Simões & Ferreira, 2019; Marta-Simões et al., 2021; McCallum et al., 2021). Self-compassion is defined as a “sensitivity to suffering in self with a commitment to try to alleviate and prevent” (Gilbert, 2013), and is one of the core concepts of Compassion Focused Therapy (CFT; Gilbert, 2014). Psychological flexibility is the key construct of the Acceptance and Commitment Therapy (ACT; Hayes et al., 1999), and is defined as the ability to engage with the present moment fully and deliberately, and to choose to change to or persist in behavior that is consistent with one's chosen values, regardless of the presence of difficult internal experiences (i.e., thoughts, memories, bodily sensations; (Hayes et al., 2006). Several programs have combined CFT and ACT with significant improvements in mental health (e.g., Palmeira et al., 2017; Pinto-Gouveia et al., 2017; Skinta et al., 2015; Trindade et al., 2020), and also the combination of and mindfulness has been applied in a wide variety of contexts and its use with adolescent populations is believed to be convenient in improving quality of life and mental health (Burke, 2010; Hayes & Greco, 2008). Moreover, self-compassion and psychological flexibility are inherently associated with positive body image, considering that one of the roots of positive body image is Buddhism (Tylka & Wood-Barcalow, 2015). This Asian philosophical tradition conceptualizes psychological distress as CFT and ACT do, i.e., as being rooted in a strict and inflexible tendency to control, or avoid unwanted internal thoughts, emotions, perceptions, and sensations. Also, Buddhism values an attitude of mindfulness and acceptance, as well as the engagement in values-based actions when dealing with unpleasant internal experiences, a way of approaching distress also associated with psychological flexibility (Hayes et al., 1999) and self-compassion (Gilbert, 2013; Neff, 2003). Psychological flexibility in relation to body image-related

threats allows the understanding of these threats as temporary and transitory, as not absolute truths about oneself and one's body image, and the choice to act based on one's chosen life's values instead of being ruminative or self-critical (Pearson et al., 2010, Webb et al., 2014). Self-compassion adds to the encouragement of mindfulness in relation to internal experiences, by advocating an attitude of self-kindness and a sense of shared humanity (Neff, 2003), serving as a buffer of the consequences of body image-related unwanted experiences.

One of the aims of #KindGirlsInACTion was to improve the girls' perception of their close relationships, particularly to increase positive emotions that arise in one's close social context. This approach was based in previous findings that supported the importance of family and peers' support and acceptance to body image. Specifically, body appreciation seems to be associated to social safeness and pleasure (Marta-Simões & Ferreira, 2020), parental and caregiver attitudes, adult attachment anxiety and avoidance, and peer criticism; and with the perception of unconditional acceptance of one's body by significant others (Frisén & Holmqvist, 2010; Iannantuono & Tylka, 2012; Wood-Barcalow et al., 2010).

Regarding the specificities of the structure and delivery of the #KinGirlsInACTion Program, it is a school-based group intervention, a strategy employed in a classroom setting that aims at improving health and well-being indicators of recipients, with empirical evidence of success in terms of its positive effects on mental health (e.g., O'Reilly et al, 2018; VandenBos, 2007). Moreover, the program was designed in a didactic and interactive way, presenting several originally developed exercises. Rather than focusing in theoretical and psychoeducational moments, it is centered on moments of personal sharing about the experiential exercises. Finally, its language was entirely adapted for the target age of participants, an approach supported by several authors that underline the importance of adapting the language and materials to participants' age, and of including enjoyable, appealing, and interactive as exercises (e.g., Levine & Smolak, 2002; Stice & Shaw, 2004).

In the last years, some interventions aimed at promoting positive body image using comparable approaches, most of them with adult samples. However, these interventions did not combine the CFT and ACT approaches while targeting the adolescent population. Albertson and colleagues (2014) designed and administered a 3-weeks intervention based on self-compassion meditation to adult women with body image difficulties. The treatment group reported an increase in body appreciation comparing to a control group, along the intervention and at a 3-month follow-up. The “Eat for Life” program (Bush et al., 2014) was administered to female adults and respective partners/spouses. This was a program that combined intuitive eating and mindfulness training for the treatment of disordered eating behaviors and body image dissatisfaction. This program resulted in significant improvements in body appreciation, intuitive eating, and mindfulness, when comparing to waitlist comparison group. Toole and Craighead (2016) tested the efficacy of a one-week Internet-based self-compassion training intervention, with mindfulness practices, delivered to undergraduate women with body image concerns. Results showed the intervention to have effects on increasing body appreciation and reducing appearance-contingent self-worth and body surveillance. Finally, Rodgers and colleagues (2018) delivered “BodiMojo”, a mobile intervention grounded in self-compassion to promote positive body image to adolescents, along 6 weeks. This intervention resulted in an increase in appearance esteem and self-compassion, although no significant interaction effects (time x condition) were found regarding appearance comparison, body image flexibility, and negative mood.

Taking into consideration previously found factors that may positively influence body appreciation, and the urge of increasing positive body image in adolescents, the present study aimed at presenting an overall view of the #KindGirlsInACTion program, and at assessing its efficacy in decreasing psychological inflexibility, and increasing female adolescent’s self-compassion, social safeness and pleasure and body appreciation. It was expected that comparing to a control group, #KindGirlsInACTion participants’ levels of psychological inflexibility would significantly decrease along the participation in the program, and levels of self-compassion, social

safeness and pleasure and body appreciation would significantly increase. It was also expected that these changes would be maintained along the three-months period of follow-up.

Method

Trial design and participants

This study was a controlled trial, carried out between September of 2019 and June of 2020. Participants were recruited between September and November of 2019, from several middle and secondary schools in the centre of Portugal. Eligibility criteria were being a female adolescent, being aged from 12 to 18 while attending school between the 7th and the 12th, and being able to understand, speak, read, and write in Portuguese. Exclusion criteria were having a medical condition that could compromise the completion of questionnaires and having a significant score in the initial screening assessment. The schools invited to participate in the study whether as intervention group or control group, depending on their logistical availability, and the curricular and schedule availability of their classes. The intervention group would compromise to attend a 9-week school-based intervention program and complete self-report measures in three different moments, and the control group to complete self-report measures in three different moments. Nonetheless, the control group was offered the opportunity to receive the intervention after the intervention group. Despite the inclusion in the intervention or the control group, participants, as well as their legal guardians, were fully debriefed about the purposes and procedures of the study, the voluntary nature of the participation, confidentiality of the data, and were asked to sign a written informed consent form.

In terms of sample size, a power analysis conducted a priori (GPower 3.1 software; Faul et al., 2009) showed that a sample of 83 female adolescents was necessary to detect large effects (significance level of .05 and power of .90).

Interventions

The #KirlsInACTion program is a group school-based intervention for female adolescents, specifically designed to increase positive body image, through the development of self-compassion competences, psychological flexibility, and mindfulness abilities.

The research team involved in the development of the program included experts in Compassion Focused Therapy (CFT), Acceptance and Commitment Therapy (ACT) and mindfulness-based interventions. Also, these researchers had previous experience in psychotherapy with adolescents and in group-psychotherapy. The first step to develop the program was the discussion of theoretical and practical questions, such as the combination of CFT, ACT and mindfulness, and the design of age-appropriate exercises and group-dynamics to integrate intervention program. Then, after drafting two manuals, one for facilitators and the other for participants, the program was tested in two pilot studies composed of emergent adult women. Sessions of the pilot studies were supervised by a CFT, ACT and mindfulness expert. The use of pilot groups aimed at testing the total duration of each exercise, practice and session, materials of the Program, structure of sessions as well as the content of each session. Qualitative feedback from the pilot groups, i.e., from the supervisor and the participants, helped reaching the final version of the manuals of the Program.

The #KindGirlsInACTion was designed as a school-based intervention program. While the intervention Program is to be delivered in the school place as an extra-curricular activity, principal and teachers were not allowed to attend the sessions to preserve participants' confidentiality. Sessions are meant to be run by two trained facilitators with experience in clinical psychology. Also, while designing the #KindGirlsInACTion, one of the main aims was to create an age-appropriate, didactic, and interactive program. To achieve this aim, language of already existent exercises was completely adapted for the target age of participants and multiple exercises were originally developed. Also, the time of each session was mostly occupied by exercises and moments of sharing, rather than psychoeducational moments.

The #KindGirlsInACTion comprises 9 weekly sessions of 45 minutes of duration. In terms of structure, all sessions follow the same structure, i.e., each session begins with a mindfulness meditation, followed by a moment of sharing the experience of the previous week and of the current experience. Then, a psychoeducational thematic moment follows with several experiential exercises. Each session ends with instructions for the meditations to practice and tasks to complete during the following week, and a final meditation moment.

In terms of contents, the first two sessions aim at presenting the Program, facilitators and participants, psychoeducation about adolescence and mental health and establishment of group union. Sessions from III to V cover the themes of evolutionary psychology, self-compassion, and compassion for others. The final sessions (from VI to IX) focus on the ACT Hexaflex, i.e., the six core processes of psychological flexibility (Table 1).

Table 1. Structure and contents of the “#KindGirlsInAction” Program.

Title	Objectives	▲Practices / ■Exercises/ ●Metaphors
Session I – “Introduction to the #KindGirlsInAction” and Program rules	Establishment of the Program rules and group union.	<ul style="list-style-type: none"> ■ “Link web” ▲ “Mindful eating of a gummy” ■ “Notice five things” ▲ “Mindfulness of sound”
Session II – Group union and common humanity “Much more is what unites us”	Promotion of group union.	<ul style="list-style-type: none"> ▲ “Mindfulness of breath and sound” ■ “All that we share” ■ “Hand gestures” ▲ “Three-minute breathing space”
Session III – Emotion regulation systems “How does the mind work?”	<p>Understanding the functioning of the Human mind.</p> <p>Presenting the adaptive side of Human emotions.</p> <p>Recognizing the soothing/affiliation emotion regulation system as the adaptive alternative to regulate the threat/protection system.</p>	<ul style="list-style-type: none"> ▲ “Present moment meditation” ● “Zebra metaphor” ● “Goose and bottle metaphor” ■ “Activate your system” ■ “The ten-finger gratitude exercise” ■ “The chocolate exercise”
Session IV – Introduction to the concept of compassion “Remind yourself to be kind”	Understanding of the role of compassion in Human emotion regulation.	<ul style="list-style-type: none"> ▲ “Observing thoughts meditation” ■ “How would you treat a friend” ● “The two teachers’ metaphor” ▲ “Loving-kindness meditation” ■ “Letter from a friend”
Session V – Self-compassion and compassion for others “Remind yourself to be kind to yourself and others”	<p>Recognizing the difficulties associated with being self-compassionate.</p> <p>Practicing self-compassion and compassion for others.</p>	<ul style="list-style-type: none"> ▲ “Compassionate friend meditation” ■ “We are all compassionate” ■ “Compassionate listening exercise” ■ “Self-compassion journal” ■ “7-11 breathing exercise”

<p>Session VI – Life values “Life is about the journey, not the destination”</p>	<p>Distinguishing objectives and life values. Learning to identify and clarify life values.</p>	<ul style="list-style-type: none"> ▲ “Observing thoughts meditation” ■ “20th birthday party” ■ “The jar of life” ■ “Make your own way” ■ “Life is about the journey, not the destination”
<p>Session VII – Control vs acceptance “Control is the trap”</p>	<p>Understanding the consequences of experiential avoidance. Promotion of acceptance.</p>	<ul style="list-style-type: none"> ▲ “Brief loving-kindness + Present moment meditation” ● “Giraffe metaphor” ● “The armed man metaphor” ■ “The ice cube exercise” ■ “Make your own way” (cont.) ■ “Outside the box exercise”
<p>Session VIII - Fusion vs defusion “Our chatty mind”</p>	<p>Understanding the consequences of cognitive fusion. Promotion of defusion.</p>	<ul style="list-style-type: none"> ▲ “Brief body scan meditation” ■ “Passengers on the bus exercise” ■ “Desliteralization of thoughts” ■ “Labelling the experience” ■ “Our distracting mind” ■ “Make your own way (cont.)” ■ “Playing with thoughts”
<p>Session IX – Committed action “Remind yourself to be kind and live a meaningful life”</p>	<p>Identification of obstacles to the practice of mindfulness, to compassion and committed action. Building strategies to overcome identified obstacles. Creating a personal compromise to live a compassionate and engaged life.</p>	<ul style="list-style-type: none"> ▲ “Mindful walking meditation” ■ “Whirl of thoughts exercise” ▲ “Compassionate friend meditation” ■ “Letter to myself” ▲ “Weather forecast mediation”

Measures

Participants of the Program were firstly screened with the DASS-C-21 (Leal et al., 2009) and a translated and adapted version of the SCOFF (Morgan et al., 2000) to assess psychological, psychiatric, and developmental problems. Then, the same set of self-report questionnaires was administered to participants of the intervention and control groups. These questionnaires were administered online, prepared in Google Forms and disseminated via email. Other than sociodemographic questions, the following adolescent-version and validated to Portuguese self-report questionnaires were administered:

Compassionate engagement and action scales (CEAS; Portuguese version for adolescents by Cunha et al., 2021). The CEAS are a set of three 13-items scales that assess compassion competences for others, from others, and self-compassion. Each one of them is composed of two subsections, one that assesses engagement (motivation and competencies to engage with, attentional sensitivity to suffering signs), and the other action (motivation to attain wisdom and skills to ease or prevent suffering). Each one of the sentences are to be rated on a 10-points scale ranging from 1 (“Never”) to 10 (“Always”). In the present study, only the scale assessing self-compassion (CEAS_SelfComp) was used. The Portuguese version for adolescents (Cunha et al., 2021) revealed good validity ($\alpha = 0.84$), and the Cronbach’s alpha value found in the present study was of .82.

Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Original version by Greco et al., 2008; Portuguese version by Cunha & Santos, 2011). The AFQ-Y accesses specifically experiential avoidance and fusion and globally psychological inflexibility. The scale comprises 17 items, in a 5-points scale ranging from 0 (“Not at all true”) to 4 (“Very true”). This scale has proved its psychometric stable and reliable properties, with the Portuguese version of the AFQ-Y presenting a Cronbach’s alpha value of .82 (Cunha & Santos, 2011). The Cronbach’s alpha value in the present study was of .89.

Social safeness and pleasure scale (SSPS; Portuguese version for adolescents by Miguel et al., 2022). The SSPS assesses current feelings of acceptance, belonging and safeness in close social relationships. It comprises 11 items to rate in a 5-points scale from 0 (“Almost never”) to 4 (“Almost all the time”). SSPS has shown consistent psychometrics ($\alpha = 0.94$) in the validation for Portuguese adolescents, and a Cronbach’s alpha of .95 in the present study.

Body Appreciation Scale-2 (BAS; Portuguese version for adolescents by Lemoine et al., 2018). This scale BAS evaluates participants’ acceptance, gratitude, care and respect to one’s own body features and rejection of harmful societal appearance ideals. The BAS comprises 10 items are rated between 1 (“Never”) and 5 (“Always”). Good psychometric properties of the BAS have been reported ($\alpha = 0.94$ for adolescent girls in the Portuguese validation study, and $\alpha = 0.96$ in the present study).

Procedures

To assure ethics compliance, approval from independent ethics committees was asked. Specifically, the Portuguese Ministry of Education (ID: 0596700001), the National Commission for Data Protection (authorization 09/2017), and the Ethics Committee of the Faculty of Psychology and Education Sciences of the University of Coimbra. Also, planning and implementation were carried out per ethical recommendations outlined by the American Psychological Association (2017) and the World Medical Association’s Declaration of Helsinki (WMA, 2013), and the controlled trial was registered at ClinicalTrials.gov (ID: NCT05149066).

Recruiting started with the establishment of contact with the principals of selected schools. Selection of schools considered two criteria: (i) having an equal distribution between rural and urban schools, and (ii) dislocation costs of the research team. In this first contact, principals were fully debriefed about the purposes and procedures of the study, the criteria for inclusion of participants for each one of the groups (intervention and control group) and were then distributed in terms of the inclusion of their students in the intervention or the control

group. In each school there was only the option of integrating the study as a intervention or control group, so that there was no crossing of information between the two groups.

For schools that decided that their students would participate as a intervention group, a program presentation session for students was scheduled. In this session, the students were informed about the objectives and structure of the program and the selection criteria and took home an informed consent document to be signed by legal representant in case they wish to participate in the intervention group. They were also told the voluntary nature of the participation, confidentiality of the data, and of the possibility of withdrawing from the program at any time, without the need for justification and without any negative consequences. Then followed the scheduling of a screening session for these students. After analyzing the responses to the initial screening, those who were considered able to join the program were asked to complete the first online assessment protocol (M0, baseline assessment), through self-report questionnaires, which was sent through email. Based on belonging to the same class, groups of participants were formed, with homogeneous ages within the same group. These groups then completed the 9-session program. In between sessions, participants received summaries of the previous session and materials to be able to carry out the proposed exercises for the week in question. Immediately after the end of the program, participants received the second assessment protocol to complete (M1, post-intervention assessment). Finally, three months after completing the program, they were asked to complete the third assessment protocol (M2, follow-up assessment).

For the schools whose students were selected to be included in the control group, if they so wished and consented, a control study presentation session was scheduled. In this session, the investigators provided an overall clarification of the study, stressing the importance of participating in the study as a member of the control group. It was explained that students should complete self-response questionnaire protocols at three different times: an initial moment (M0); a second assessment, 9 weeks after the first (M1); and a final assessment, three months after the

second (M2). It was also informed that if they complete the three assessments, students would be eligible to draw one of five shopping vouchers, to acquire goods related to learning and culture. The students were also offered the opportunity to attend the #KindGirlsInAction, but only after the end of the studies.

One aspect worth noting is that the intervention group subgroups did not start the program at the same time. Also, for both the intervention and the control groups the follow-up assessment (M2) took place in a lockdown period due to the COVID-19 pandemic.

During the intervention program, the facilitators had weekly supervision meetings with an expert in the theories underlying the development of the program, with experience in group psychotherapeutic interventions.

Data analysis

Descriptive statistics were firstly used to analyze the characteristics of the sample, and of the studied outcome variables. Prior to further analysis, the internal consistency of the outcome measures was calculated based on Cronbach's alpha. Then, independent samples *t*-tests allowed the comparison between intervention and control groups regarding demographic variables and outcome variables' scores at baseline

To test intervention effects, a 3 x 2 mixed ANOVAs was performed. This analysis considered time (before the program, after the program and at a 3-months follow up) and after the PSYCHOPATHY.COMP) as the within-group factor and condition (intervention group vs. control group) as the between-group factor. Partial eta squares (η^2p) allowed the estimation of effect sizes, taking into account Tabachnick and colleagues' recommendations (2007), i.e., with $\eta^2p = .01$ referring to a small effect size, $.06$ to a medium effect size and $.14$ to a large effect size.

Finally, to measure significant clinical change (i.e., evaluating intra-subject clinical individual change) after the #KindGirlsInAction and at a 3-months follow-up, the Reliable Change Index (RCI) was computed (Jacobson & Truax, 1991). RCI scores were then interpreted as

recommended by Wise (2004), i.e., with $RCI > 0.84$ indicating a reliable significant change (reliable improvement), $RCI < -0.84$ (reliable deterioration), indicating the occurrence of deterioration, and values between 0.84 and -0.84 indicating the absence of change. For the interpretation of the RCI in this study, three clinical change categories were defined: “global improvement” (GI), “global deterioration” (GD), and “indeterminate change” (IC). To compare intervention and control groups regarding the distribution by clinical change categories, chi-square statistics with Fisher’s exact tests with a .05 level of significance were performed. Cramer’s V allowed the estimation of effect size of the associations found in the distribution by clinical change categories, with values between .00 and .10 indicating negligible association; between .10 and under .20, a weak association; from .20 to .40, a moderate association; between .40 and .60, a relatively strong association; .60 and .80, a strong association; and from .80 and under 1.00, a very strong association.

Results

Recruitment and retention

A total of seven schools participated in the study, three of them participated in the intervention program and four participated in the control group. As outlined by Figure 1, 367 female adolescents attended a session to present the intervention or control study, according to the condition attributed to the school in question, taking into account the previously mentioned criteria. After assessing potential participants’ intention to participate, approval by their legal guardians and meeting of inclusion and exclusion criteria, a total of 111 participants (30.25%) were excluded from the study: 106 (28.89%) declined to participate or did not present an informed consent form signed by a legal guardian, and 7 (1.36%) did not meet criteria for inclusion.

A total of 109 female students were assigned to the intervention group, and 82 to the control group. From the initial 109 intervention group participants, 59 (54.13%) completed all the sessions of the program and the post-intervention assessment (M1). A total of 35 adolescents (32.11%) ended the program earlier than expected due to the COVID-19 pandemic and subsequent closing of schools, and 15 (13.76%) dropped out of the program for various reasons, including acute health conditions, need to invest more in study time, etc. Thus, fifty participants (45.87%) did not complete the sessions of the program and did not complete the M1. Three months later, 52 (88.14%) participants completed the follow-up assessment (M2), while 7 (11.86%) declined to complete this assessment. Regarding the control group, of the 147 who agreed to participate and completed the baseline assessment (M0), only 102 (69.39%) completed the post-intervention assessment (M1). Then, a total of 62 (63.24%) completed the 3-months follow-up assessment (M2). Regarding data analysis, all participants' responses were considered, with no exclusions. This is due to the fact that the platform used to deliver the online questionnaires does not allow blank responses, and the fact that participants who missed an assessment moment were automatically excluded from the list of invitations to fill out the following assessment protocol.

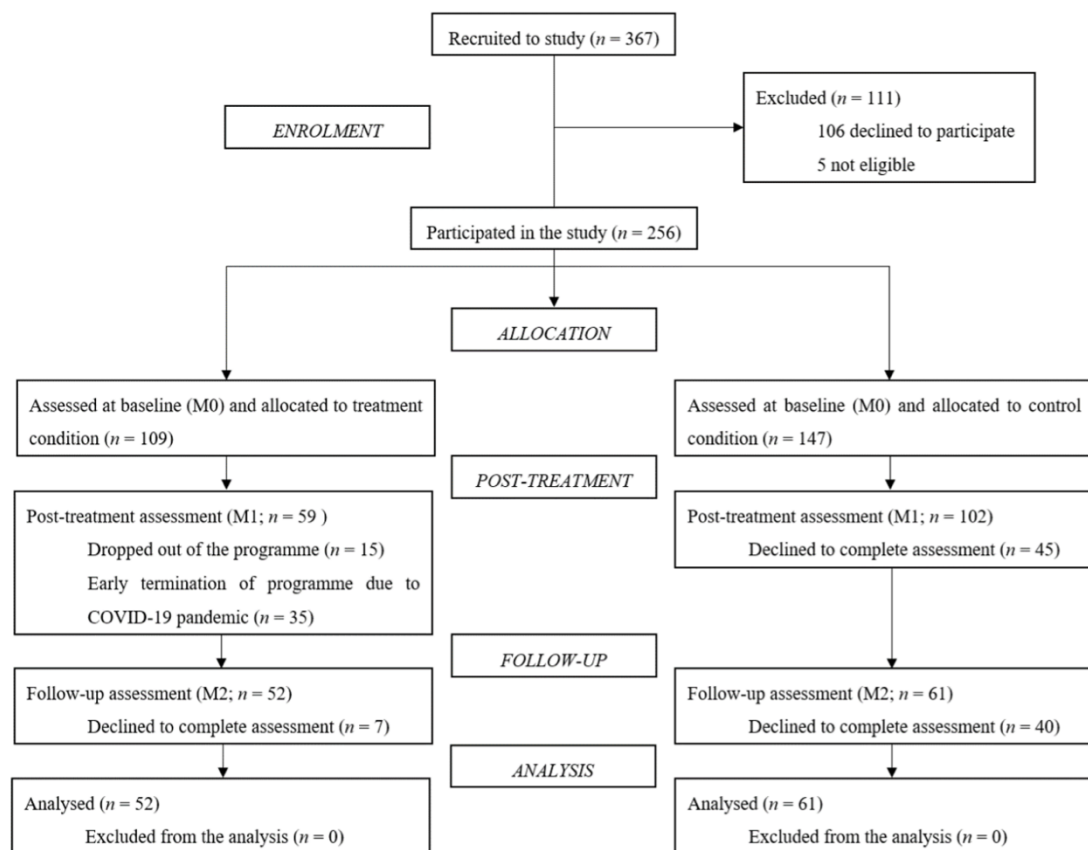


Figure 1. Flowchart of the participation in the #KindGirlsInAction study.

Baseline differences

Treatment and control groups were compared on age, BMI, as well as on levels of self-compassion (CEAS_SC), psychological inflexibility (AFQ-Y), social safeness and pleasure (SSPS), body appreciation (BAS), perceived quality of life (KIDSCREEN-27) and disordered eating symptoms (EDE-Q). Results are presented in Table 2, indicating the absence of differences between groups at the onset of the study (all $p > .050$).

Intervention effects on self-compassion at post-intervention and follow-up

Table 2 displays the mean scores and standard deviations of self-compassion (CEAS_SC) at baseline (M0), post-intervention (M1) and follow-up (M2), by group, as well as mixed 3×2 ANOVAs results. Significant time \times condition effects were observed for CEAS_SC, with a small

effect size ($F = 3.471$; $p = .033$; $\eta^2 p = .031$). An ANOVA graph (Figure 2) also allowed to notice that in the intervention group, CEAS_SC increased between M0 and M1, and after the program, i.e., between M1 and M2. The contrary happened with the control group, in which a decrease in CEAS_SC was noticed between M0 and M1, and M1 and M2.

Regarding individual clinical change (RCI; Table 3), data on self-compassion scores (CEAS_SC) is presented for both groups. Results indicated significant differences between groups in the distribution by clinical change categories for CEAS_SC, from M0 to M1 and from M1 to M2. Specifically, while most participants in the intervention group presented a reliable increase in CEAS_SC between M0 and M1 (52%), and M1 and M2 (54%), the majority of participants in the control group showed a reliable deterioration in CEAS_SC (66% between M0 and M1, and 71% between M1 and M2). Differences in the distributions between groups for CEAS_SC had moderate effect sizes.

Intervention effects on psychological inflexibility at post-intervention and follow-up

Table 2 displays the mean scores and standard deviations of psychological inflexibility (AFQ-Y) at baseline (M0), post-intervention (M1) and follow-up (M2), by group, as well as mixed 3×2 ANOVAs results. Non-significant time \times condition effects were observed for AFQ-Y ($F = 1.047$; $p = .349$; $\eta^2 p = .010$). Due to the non-significance of the AFQ-Y ANOVA, no further analyses were computed.

Intervention effects on social safeness and pleasure at post-intervention and follow-up

Table 2 displays the mean scores and standard deviations of social safeness and pleasure (SSPS) at baseline (M0), post-intervention (M1) and follow-up (M2), by group, as well as mixed 3×2 ANOVAs results. Significant time \times condition effects were observed for SSPS, with a small effect size ($F = 4.093$; $p = .018$; $\eta^2 p = .036$). An ANOVA graph (Figure 3) also allowed to notice that in the intervention group, SSPS increased between M0 and M1, and after the program, i.e.,

between M1 and M2. The contrary happened with the control group, in which a decrease in SSPS was noticed between M0 and M1, and M1 and M2.

Regarding individual clinical change (RCI; Table 3), data on social safeness and pleasure scores (SSPS) is presented for both groups. Results indicated significant differences between groups in the distribution by clinical change categories for SSPS, from M0 to M1 and from M1 to M2. Specifically, while most participants in the intervention group presented a reliable increase in SSPS between M0 and M1 (56%), and M1 and M2 (54%), the majority of participants in the control group showed a reliable deterioration in SSPS (62% between M0 and M1, and 66% between M1 and M2). Differences in the distributions between groups for SSPS had moderate effect sizes.

Intervention effects on body appreciation at post-intervention and follow-up

Table 2 displays the mean scores and standard deviations of body appreciation (BAS) at baseline (M0), post-intervention (M1) and follow-up (M2), by group, as well as mixed 3×2 ANOVAs results. Significant time × condition effects were observed for BAS, with a medium effect size ($F = 9.606$; $p < .001$; $\eta^2 p = .081$). An ANOVA graph (Figure 4) also allowed to notice that in the intervention group, SSPS increased between M0 and M1, and after the program, i.e., between M1 and M2. The contrary happened with the control group, in which a decrease in BAS was noticed between M0 and M1, and M1 and M2.

Regarding individual clinical change (RCI; Table 3), data on body appreciation (BAS) is presented for both groups. Results indicated significant differences between groups in the distribution by clinical change categories for BAS, from M0 to M1 and from M1 to M2. Specifically, most participants in the intervention group presented a reliable BAS increase (33% between M0 and M1, and 25% between M1 and M2) or maintained BAS scores between M0 and M1 (48%), and M1 and M2 (50%). Regarding the control group, the majority of participants showed a reliable

deterioration in BAS (56% between M0 and M1, and 62% between M1 and M2). Differences in the distributions between groups for BAS had moderate effect size.

Table 2. Means and standard deviations for sociodemographics and variables in study at baseline, post-intervention and follow-up, and mixed ANOVA with time x condition effects.

	Baseline (M0)		<i>t</i>	<i>p</i>	Post-intervention (M1)		Follow-up (M2)		Time x condition
	Intervention	Control Group			Intervention	Control Group	Intervention	Control Group	
	group	<i>M (SD)</i>			group	<i>M (SD)</i>	group	<i>M (SD)</i>	
	<i>M (SD)</i>				<i>M (SD)</i>		<i>M (SD)</i>		
Age	15.42 (1.51)	15.10 (1.79)	1.033	.304					
BMI	21.37 (2.77)	20.62 (2.75)	1.450	.150					
CEAS_SC	62.73 (17.95)	63.70 (13.20)	-.332	.741	66.20 (20.51)	61.64 (15.49)	68.98 (19.83)	61.23 (15.23)	$F = 3.471; p = .033; \eta^2 p = .031$
AFQ-Y	32.65 (14.67)	33.97 (11.07)	-.530	.598	29.22 (14.56)	33.20 (10.44)	29.48 (14.12)	33.51 (12.09)	$F = 1.047; p = .349; \eta^2 p = .010$
SSPS	41.19 (10.55)	40.61 (9.10)	.317	.752	43.56 (9.18)	39.10 (8.87)	44.14 (8.91)	38.90 (9.52)	$F = 4.093; p = .018; \eta^2 p = .036$
BAS	3.66 (.98)	3.68 (.93)	-.084	.933	3.80 (.96)	3.46 (.97)	3.81 (.97)	3.26 (.96)	$F = 9.606; p < .001; \eta^2 p = .081$

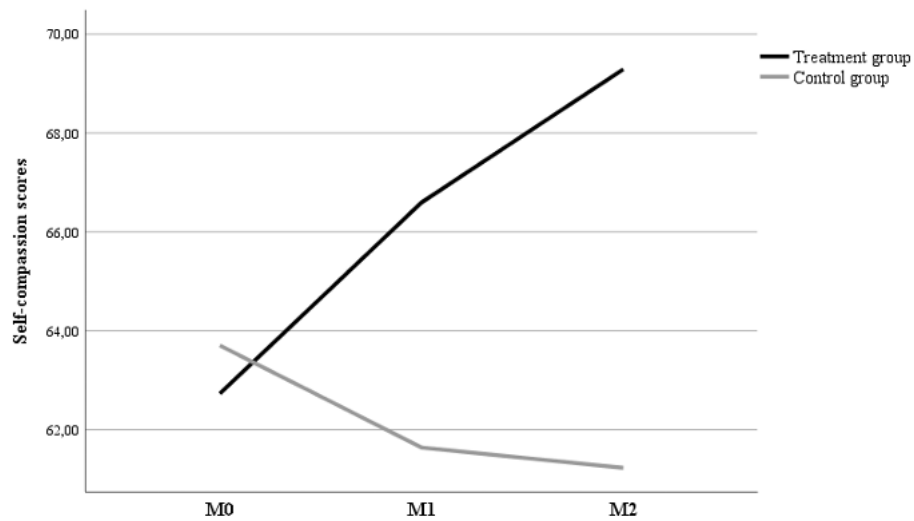


Figure 2. Mixed ANOVA for self-compassion scores at assessment moments M0, M1, M2 for the intervention/treatment ($n = 52$) and the control ($n = 61$) groups.

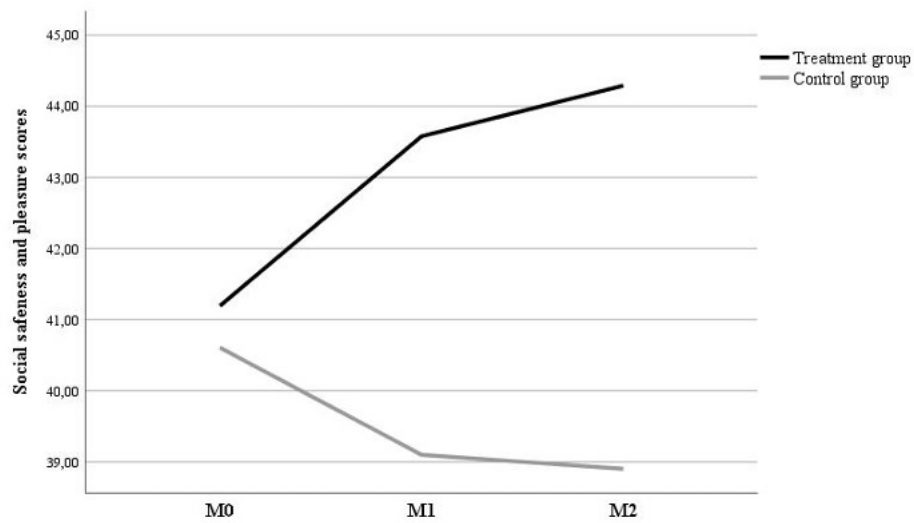


Figure 3. Mixed ANOVA for social safeness and pleasure scores at assessment moments M0, M1, M2 for the intervention/treatment ($n = 52$) and the control ($n = 61$) groups.

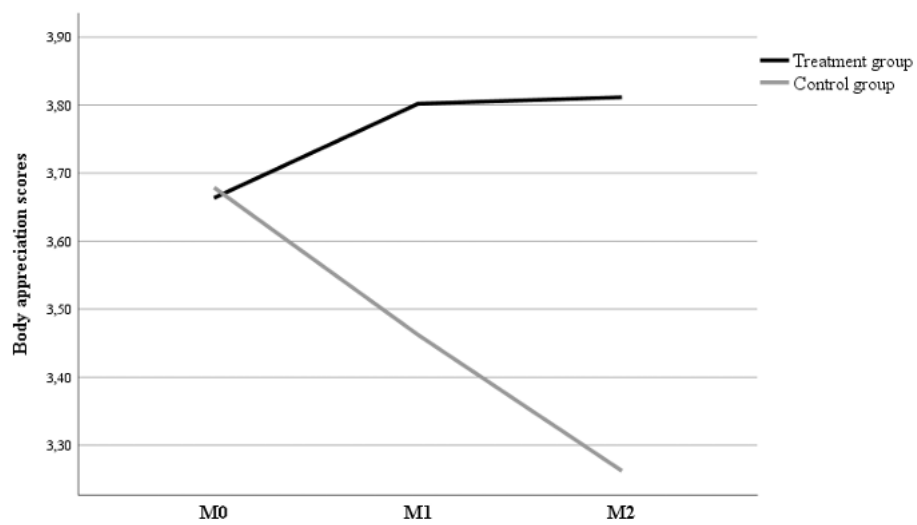


Figure 4. Mixed ANOVA for body appreciation scores at assessment moments M0, M1, M2 for the treatment/treatment ($n = 52$) and the control ($n = 61$) groups.

Table 3. Reliable Change Index for outcome variables by group.

Measures	Categories	From pre-intervention (M0) to post-intervention assessment (M1)						From post-intervention (M1) to follow-up assessment (M2)							
		Intervention group (<i>n</i> = 52)		Control group (<i>n</i> = 61)		Fisher's	<i>p</i>	Cramer's <i>V</i>	Intervention group (<i>n</i> = 52)		Control group (<i>n</i> = 61)		Fisher's	<i>p</i>	Cramer's <i>V</i>
		<i>n</i>	%	<i>n</i>	%				<i>n</i>	%	<i>n</i>	%			
CEAS_AC	RI	27	52%	17	28%	7.54	.021	.26	28	54%	13	21%	12.81	.001	.34
	IC	4	8%	4	6%				2	4%	5	8%			
	RD	21	40%	40	66%				22	42%	43	71%			
SSPS	RI	29	56%	19	31%	11.22	.004	.32	28	54%	18	29%	14.07	.001	.35
	IC	7	13%	4	6%				8	15%	3	5%			
	RD	16	31%	38	62%				16	31%	40	66%			
BAS	RI	17	33%	10	16%	16.10	< .001	.37	13	25%	10	16%	16.55	<.001	.38
	IC	25	48%	17	28%				26	50%	13	21%			
	RD	10	19%	34	56%				13	25%	38	62%			

Note. RI = Reliable improvement; IC = Indeterminate change; RD = Reliable deterioration

Discussion

The present study aimed at testing the efficacy of the #KindGirlsInACTion program in decreasing psychological inflexibility, and increasing female adolescent's self-compassion, social safeness and pleasure and body appreciation, in a controlled trial comprising an intervention group ($n = 52$) and a control group ($n = 61$). Overall, results showed that there were no differences between intervention and control groups regarding demographic variables and outcome variables, i.e., psychological inflexibility, self-compassion, social safeness and pleasure and body appreciation.

The intervention effects were analyzed both at a group level, with mixed ANOVAs, and at an individual level, with the computation of reliable change index, an indicator of individual observed clinical change. Regarding self-compassion, social safeness and pleasure and body appreciation, results of the mixed ANOVA pointed the effectiveness of the #KindGirlsInACTion. Self-compassion scores increased in participants of the intervention group, both along the course of the program and between post-intervention and follow-up assessments, comparing to a control group in which self-compassion scores decreased overtime. This result was expected considering the strong component of practice of self-compassion and compassion for others embedded in the intervention program. The #KindGirlsInACTion included several exercises known to be effective in the promotion of compassion, namely the promotion of a sense of common humanity through the exercise "all that we share", psychoeducation about the importance of the soothing/affiliation emotion regulation system, loving-kindness meditations, exercises such as "letter from a friend", "compassionate listening", "self-compassion journal", the writing a self-compassionate "letter to myself" in the ending session that was later sent to the participants, and the continuous practice of mindfulness throughout the program. The practice of gratitude may also have contributed for the promotion of self-compassion, taking into account that gratitude is considered a required competency for compassion (Gilbert, 2014). Also, the compassion themed

sessions were one of the most appreciated sessions by the participants (Mendes et al., 2022). Mixed ANOVA's results were further analyzed by RCIs, which showed that most participants in the intervention group increased their levels of self-compassion, as the majority of participants of the control group suffered a decrease in self-compassion. This phenomenon happened both along the program as well as between the post-intervention and follow-up assessments, which points out that the #KindGirlsInACTion may have been successful in terms of maintaining gains over time, even in the absence of contact with intervention in the follow-up period.

One more aim of the #KindGirlsInACTion was to improve the quality of close relationships, specifically peer relationships. It was expected that the program would promote affiliative relationships, i.e., characterized by understanding, kindness, compassion, and not by competition. A measure of feelings of social safeness, connectedness and pleasure was used to test this effect. Results pointed out a significant time x condition effect for the measure of social safeness, with social safeness increasing in the intervention group along the program as well as after the intervention, contrasting with the control group, which showed a decrease in social safeness's levels over time. The program comprised several exercises that may have contributed for the promotion of feelings of belonging and connectedness with peers, namely the "Link web", "All that we share", "We are all compassionate", "Compassionate listening exercise", and the "Compassionate friend meditation". RCIs showed that most participants in the intervention group increased their levels of social safeness, as the majority of participants of the control group suffered a decrease in social safeness. The increasement in social safeness was noticeable both along the program as well as between the post-intervention and follow-up assessments. This result was unexpected considering that at the time of the follow-up assessment, the participants were in COVID-19 lockdown, as previously explained. In this sense, it seems that their perception of social security and pleasure resisted this challenge, and the social deprivations that were inherent to it, remaining stable and even increasing even in the absence of intervention (for the intervention group).

Finally, the main aim of the #KindGirlsInACTion intervention was to promote positive body image, measured by one of its key components, body appreciation. Results pointed that both groups had significantly different tendencies regarding levels of body appreciation, as significant time x condition effects were verified. Specifically, participants in the intervention group had their levels of body appreciation increased from pre-intervention to post-intervention, and from post-intervention to the follow-up assessment. Contrarily, the control group showed a decrease in body appreciation over time. RCI's helped to clarify mixed ANOVA's results, pointing that over time most of the participants in the intervention group increased or maintained body appreciation's levels, while most of the participants of the control group suffered reliable deterioration of body appreciation's levels. Indeed, the fact that body appreciation may decrease in girls along adolescence, without a specific intervention, was already reported (Marta-Simões et al., 2022). Considering that the program did not cover the themes of positive body image, body appreciation, body compassion or body image flexibility, one hypothesis is that the changes in self-compassion and social safeness and pleasure's levels, and the exercises and metaphors aiming at promoting psychological flexibility may have contributed for the promotion of body appreciation. Indeed, literature has already stated the association between psychological flexibility, self-compassion and social safeness and pleasure with body appreciation (Marta-Simões & Ferreira, 2019; Marta-Simões et al., 2021). Regarding the #KindGirlsInACTion's components of psychological flexibility practice and its hypothetical effect in promoting body appreciation, this may be explained by some level of coherence between the constructs of psychological flexibility body appreciation. Indeed, in order to be actively appreciative, caring, attentive and protecting over perceived flaws in appearance, and to be able to make a distinction between social-prescribed beauty ideals and a balanced and healthy perception of one's body and self-care behaviors, it seems that one must not engage in avoidance or modification of unwanted emotions, feelings or sensations and actually be capable to get in contact with these unwanted body-related experiences (mindfulness), accept that some of one's bod accepting that

some of the body's own characteristics are less desirable (acceptance), having a broader perspective of one's own body, valuing, for example, the aspect of its functionality (defusion and self-as-context); be able to define values inherent to their health and self-care behaviors (values), and guide their actions by these same values (committed action) (Avalos et al., 2005; Marta-Simões & Ferreira, 2019; Webb et al., 2014). Secondly, the hypothesis that self-compassion practices may have contributed for the promotion of body appreciation is based on several references of the association between both variables in previous literature (Homan & Tylka, 2015; Marta-Simões & Ferreira, 2019; Marta-Simões et al., 2021). This association may be explained by the fact that the body image domain represents a constant challenge for adolescents, and an active source of undesirable and uncomfortable internal experiences, through the successive comparison of one's own body image with the one of their peers and the standard advocated by the media and society (Holsen et al., 2001; Neumark-Sztainer). In this context, it seems understandable that body-related appreciative and protective attitudes, as well as a broad conceptualization of beauty, may imply having the competences of being sensitive and motivated to engage with body image-related distress and suffering, and of actively gather resources to deal with suffering, and take action to reduce and/or prevent it (self-compassion engagement and action) (Avalos et al., 2005; Marta-Simões & Ferreira, 2019). Finally, regarding the suggestion that the promotion of affiliative relationships may have had an effect in the increasement of body appreciation in the intervention group, this association may be explained by the fact that body image is a source of insecurity for adolescent girls, and a reason for competitive behavior among peers (Holsen et al., 2001; Pinto-Gouveia et al., 2014; Neumark-Sztainer). It seems logical that, in adolescents, a close-social environment characterized by connection, security and feelings of belonging may constitute a context of opportunity to be appreciative, protective and to have balanced experience of one's own body characteristics.

Regarding levels of psychological inflexibility, the controlled trial provided an unexpected result. At a group level, results revealed that the KindGirlsInACTion was not successful in reducing

levels of psychological inflexibility, as non-significant time \times condition effects were observed. Some aspects of this study may have contributed for this result. Firstly, although the #KindGirlsInACTion comprises various sessions that address the themes of psychological flexibility, the most addressed processes were values and committed actions (Table 1). Nonetheless, the self-report scale used to measure the outcome of psychological flexibility was AFQ-Y which accesses psychological flexibility through items that reflect the processes of avoidance and cognitive fusion (Greco et al., 2008). In this line, the Committed Action Questionnaire (McCracken et al., 2015), the Engaged Living Scale (Trompetter et al., 2013), or the Comprehensive Assessment of Acceptance and Commitment Therapy Processes (CompACT; Francis et al., 2016) would be more appropriate measures to assess changes. However, there are not Portuguese-language validated versions of these scales for adolescents. One other aspect relates to the difficulty of adapting ACT for the adolescent population. Although the #KindGirlsInACTion was designed with specific care to adapt its language and all the exercises, metaphors, and practices to the age group in question, ACT has been utilized in only few studies with adolescents and literature considers that more research is required to determine the suitability of ACT for adolescents (e.g., Halliburton & Cooper, 2015). Indeed, the use of ACT with adolescents requires several developmental adaptations (e.g., behavioral activation, examples, personalized goals, the inclusion of parents and peers), since it is most appropriate for individuals with more advanced insight and abstract reasoning (Halliburton & Cooper, 2015). Finally, although a non-significant time \times condition effect was found for AFQ-Y, a reduction of AFQ-Y's scores was revealed along the program, and an increase was shown between the post-intervention and the follow-up assessment.

Although present findings suggest the efficacy of the #KindGirlsInACTion intervention, some limitations should be acknowledged. Most importantly, the use of a small sample size, the use of a non-randomized sample distribution and the absence of a long-term follow-up assessment. These limitations restrict generalization of results and may inform the conduction of

further research. Future randomized studies, with a larger sample, and a longer-term follow-up assessment, are required to confirm the efficacy of the intervention. Future studies should consider the use of other measures of psychological flexibility, to clarify unexpected results of the present study, and also should not rely exclusively on self-report measures (e.g., assessment interviews). Also, to test if psychological flexibility, self-compassion and social safeness and pleasure could constitute mechanisms of change in body appreciation, and if these variables have impact in adolescent girls' perceived quality of life, future research should consider the analysis of mediation and moderation effects among variables. Finally, in order to assure the maintenance of therapeutic gains, future administrations of the #KindGirlsInAction program should consider the implementation of booster sessions over time

Overall, the present study seems to present encouraging findings which, together with data from the program acceptability study (Mendes et al., 2022), suggest that the combination of mindfulness, ACT and CFT in a school-based and fully experiential, interactive, and age-tailored school-based intervention may be adequate and effective in the promotion of adolescent girls' positive body image. Although additional research on the efficacy of the #KindGirlsInAction is still needed, results may have implications for the promotion of overall well-being of adolescents and also for the prevention of body image-related disturbances.

Conflict of interest: All authors have no conflicts of interest to report.

Ethical compliance: All procedures performed in studies involving Human participants were in accordance with the ethical standards of the institutional committee and national institutions, and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants involved in the study.

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References

- Albertson, E. R., Neff, K. D., & Dill-Shackleford, K. E. (2015). Self-compassion and body dissatisfaction in women: A randomized controlled trial of a brief meditation intervention. *Mindfulness*, *6*(3), 444-454. <https://doi.org/10.1007/s12671-014-0277-3>
- Alleva, J. M., Sheeran, P., Webb, T. L., Martijn, C., & Miles, E. (2015). A Meta-Analytic Review of Stand-Alone Interventions to Improve Body Image. *PloS one*, *10*(9), e0139177. <https://doi.org/10.1371/journal.pone.0139177>
- American Psychological Association (2017). *Ethical principles of psychologists and code of conduct*. <https://www.apa.org/ethics/code/>
- Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The body appreciation scale: Development and psychometric evaluation. *Body image*, *2*(3), 285-297. <https://doi.org/10.1016/j.bodyim.2005.06.002>
- Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies*, *19*(2), 133-144. <https://doi.org/10.1007/s10826-009-9282-x>
- Bush, H. E., Rossy, L., Mintz, L. B., & Schopp, L. (2014). Eat for life: a work site feasibility study of a novel mindfulness-based intuitive eating intervention. *American Journal of Health Promotion*, *28*(6), 380-388. <https://doi.org/10.4278/ajhp.120404-QUAN-186>
- Carrard, I., Della Torre, S. B., & Levine, M. (2019). La promotion d'une image corporelle positive chez les jeunes [Promoting a positive body image in young people.]. *Sante publique*

(Vandoeuvre-les-Nancy, France), Vol. 31(4), 507–515.

<https://doi.org/10.3917/spub.194.0507>

Cash, T. F., & Pruzinsky, T. (Eds.). (1990). *Body images: Development, deviance, and change*. The Guilford Press

Clay, D., Vignoles, V. L., & Dittmar, H. (2005). Body image and self-esteem among adolescent girls: Testing the influence of sociocultural factors. *Journal of research on adolescence, 15*(4), 451-477. <https://doi.org/10.1111/j.1532-7795.2005.00107.x>

Cunha, M., Galhardo, A., Gilbert, P., Rodrigues, C., & Matos, M. (2021). The flows of compassion in adolescents as measured by the compassionate engagement and action scales. *Current Psychology, 1-15*. <https://doi.org/10.1007/s12144-021-02097-54>

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>

Fenton, C., Brooks, F., Spencer, N., & Morgan, A. (2010). Sustaining a positive body image in adolescence: an assets-based analysis. *Health & social care in the community, 18, 2*, 189-98. <https://doi.org/10.1111/j.1365-2524.2009.00888.x>

Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT). *Journal of Contextual Behavioral Science, 5*, 134-145. <https://doi.org/10.1016/j.jcbs.2016.05.003>

Frisén, A., & Holmqvist, K. (2010). What characterizes early adolescents with a positive body image? A qualitative investigation of Swedish girls and boys. *Body image, 7*(3), 205–212. <https://doi.org/10.1016/j.bodyim.2010.04.001>

Gilbert, P. (2013). *Mindful compassion: Using the power of mindfulness and compassion to transform our lives*. Hachette UK

- Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6-41. <https://doi.org/10.1111/bjc.12043>
- Golberstein, E., Wen, H., & Miller, B. F. (2020). Coronavirus disease 2019 (COVID-19) and mental health for children and adolescents. *JAMA pediatrics, 174*(9), 819-820. <https://doi.org/10.1001/jamapediatrics.2020.1456>
- Greco, L. A., Lambert, W., & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: Development and evaluation of the Avoidance and Fusion Questionnaire for Youth. *Psychological Assessment, 20*(2), 93-102. <https://doi.org/10.1037/1040-3590.20.2.93>
- Grogan, S. (2016). *Body Image: Understanding Body Dissatisfaction in Men, Women and Children* (3rd ed.). Routledge. <https://doi.org/10.4324/9781315681528>
- Hayes, S. C., & Greco, L. A. (2008). Acceptance and mindfulness for youth: It's time. In L. A. Greco & S. C. Hayes (Eds.), *Acceptance & mindfulness treatments for children & adolescents: A practitioner guide* (pp. 3-14). Oakland, CA: New Harbinger Publications, Inc.
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: model, processes and outcomes. *Behaviour research and therapy, 44*(1), 1–25. <https://doi.org/10.1016/j.brat.2005.06.006>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. Guilford Press.
- Halliburton, A. E., & Cooper, L. D. (2015). Applications and adaptations of Acceptance and Commitment Therapy (ACT) for adolescents. *Journal of Contextual Behavioral Science, 4*(1), 1-11. <https://doi.org/10.1016/j.jcbs.2015.01.002>
- Holmqvist, K., Frisén, A. (2012). "I bet they aren't that perfect in reality:" Appearance ideals viewed from the perspective of adolescents with a positive body image. *Body Image, 9*(3), 388–395. <https://doi.org/10.1016/j.bodyim.2012.03.007>

- Holsen, I., Kraft, P., & Røysamb, E. (2001). The Relationship between Body Image and Depressed Mood in Adolescence: A 5-year Longitudinal Panel Study. *Journal of health psychology, 6*(6), 613–627. <https://doi.org/10.1177/135910530100600601>
- Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body image, 15*, 1–7. <https://doi.org/10.1016/j.bodyim.2015.04.007>
- Iannantuono, A. C., & Tylka, T. L. (2012). Interpersonal and intrapersonal links to body appreciation in college women: an exploratory model. *Body image, 9*(2), 227–235. <https://doi.org/10.1016/j.bodyim.2012.01.004>
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. *Journal of consulting and clinical psychology, 59*(1), 12–19. <https://doi.org/10.1037//0022-006x.59.1.12>
- Leal, I. P., Antunes, R., Passos, T., Pais-Ribeiro, J., & Maroco, J. (2009). Estudo da escala de depressão, ansiedade e stresse para crianças (EADS-C). *Psicologia, saúde e doenças, 10*(2), 277-284.
- Lemoine, J. E., Konradsen, H., Lunde Jensen, A., Roland-Lévy, C., Ny, P., Khalaf, A., & Torres, S. (2018). Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body image, 26*, 1–9. <https://doi.org/10.1016/j.bodyim.2018.04.004>
- Levine, M. P., & Smolak, L. (2002). Body image development in adolescence. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 74-82). New York: Guilford Press.
- Marta-Simões, J., & Ferreira, C. (2019). Turning self-compassionate engagement into action: impact on body appreciation among Portuguese women. *Journal of Contextual Behavioral Science, 11*, 21-26. <https://doi.org/10.1016/j.jcbs.2018.11.004>

- Marta-Simões, J., & Ferreira, C. (2020). Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and weight disorders: EWD*, 25(2), 399–406. <https://doi.org/10.1007/s40519-018-0612-0>
- Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2021). Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating. *Eating and weight disorders: EWD*, 10.1007/s40519-021-01274-6. Advance online publication. <https://doi.org/10.1007/s40519-021-01274-6>
- Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2022). *Early memories of warmth and safeness and current social safeness: Longitudinal contributions for girls' body appreciation* [Manuscript submitted for publication]. CINEICC, University of Coimbra.
- McCallum, M., Ho, A. S., May, C. N., Behr, H., Mitchell, E. S., & Michealides, A. (2021). Body Positivity and Self-Compassion on a Publicly Available Behavior Change Weight Management Program. *International journal of environmental research and public health*, 18(24), 13358. <https://doi.org/10.3390/ijerph182413358>
- McCracken, L. M., Chilcot, J., & Norton, S. (2015). Further development in the assessment of psychological flexibility: A shortened Committed Action Questionnaire (CAQ-8). *European Journal of Pain*, 19, 677-685. <https://doi.org/10.1002/ejp.589>
- McKnight Investigators (2003). Risk factors for the onset of eating disorders in adolescent girls: results of the McKnight longitudinal risk factor study. *The American journal of psychiatry*, 160(2), 248–254. <https://doi.org/10.1176/ajp.160.2.248>
- Mendes, A. L., Marta-Simões, J., & Ferreira, C. (2022). *#KindGirlsInAction: A school-based group intervention to promote adolescent girls' compassion and psychological flexibility* [Manuscript submitted for publication]. CINEICC, University of Coimbra.

- Menzel, J. E., Krawczyk, R., Thompson, J. K. (2011). Attitudinal assessment of body image for adolescents and adults In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 3-11). New York: Guilford Press.
- Miguel, R. R., Sousa, R., Santos, L., Brazão, N., Rijo, D., Castilho, P., & Gilbert, P. (2022). *Dimensionality and measurement invariance of the Social Safeness and Pleasure Scale in adolescents from community and residential youth care*. Manuscript submitted for publication. CINEICC, University of Coimbra.
- Morgan, J. F., Reid, F., & Lacey, J. H. (2000). The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *The Western Journal of Medicine*, *172*(3), 164–165. <https://doi-org/10.1136/ewjm.172.3.164>
- Neff, K. D. (2003). Self-Compassion: An Alternative Conceptualization of a Healthy Attitude Toward Oneself. *Self and Identity*, *2*(2), 85–101. <https://doi.org/10.1080/15298860309032>
- Neumark-Sztainer, D., Croll, J., Story, M., Hannan, P. J., French, S. A., & Perry, C. (2002). Ethnic/racial differences in weight-related concerns and behaviors among adolescent girls and boys: findings from Project EAT. *Journal of psychosomatic research*, *53*(5), 963–974. [https://doi.org/10.1016/s0022-3999\(02\)00486-5](https://doi.org/10.1016/s0022-3999(02)00486-5)
- O'Reilly, M., Svirydzienka, N., Adams, S., & Dogra, N. (2018). Review of mental health promotion interventions in schools. *Social psychiatry and psychiatric epidemiology*, *53*(7), 647–662. <https://doi.org/10.1007/s00127-018-1530-1>
- Palmeira, L., Pinto-Gouveia, J., & Cunha, M. (2017). Exploring the efficacy of an acceptance, mindfulness & compassionate-based group intervention for women struggling with their weight (Kg-Free): a randomized controlled trial. *Appetite*, *112*, 107–116. doi: 10.1016/j.appet.2017.01.027

- Pearson, A., Macera, M. H., & Follette, V. (2010). *Acceptance and commitment therapy for body image dissatisfaction: A practitioner's guide to using mindfulness, acceptance, and values-based behavior change strategies*. New Harbinger Publications.
- Pinto-Gouveia, J., Carvalho, S. A., Palmeira, L., Castilho, P., Duarte, C., et al. (2017). BEfree: a new psychological Program for binge eating that integrates psychoeducation, mindfulness, and compassion. *Clinical Psychology & Psychotherapy*, *24*, 1090–1098. <https://doi.org/10.1002/cpp.2072>
- Pinto-Gouveia, J., Ferreira, C., & Duarte, C. (2014). Thinness in the pursuit for social safeness: An integrative model of social rank mentality to explain eating psychopathology. *Clinical Psychology & Psychotherapy*, *21*(2), 154-165. <https://doi.org/10.1002/cpp.1820>
- Regehr, R. Y., Owens, R. L., Cox, D. W., & Clayton, C. C. (2020). Piloting Free To Be: A Positive Body Image Program for Adolescents. *The Counseling Psychologist*, *48*(6), 774-800. <https://doi.org/10.1177/0011000020922216>
- Rodgers, R. F., Donovan, E., Cousineau, T., Yates, K., McGowan, K., Cook, E., ... & Franko, D. L. (2018). BodiMojo: Efficacy of a mobile-based intervention in improving body image and self-compassion among adolescents. *Journal of youth and adolescence*, *47*(7), 1363-1372. <https://doi.org/10.1007/s10964-017-0804-3>
- Skinta, M. D., Lezama, M., Wells, G., & Dilley, J. W. (2015). Acceptance and compassion-based group therapy to reduce HIV Stigma. *Cognitive Behavioral Therapy*, *22*, 481–490. doi: 10.1016/j.cbpra.2014.05.006
- Stice E. (2001). A prospective test of the dual-pathway model of bulimic pathology: mediating effects of dieting and negative affect. *Journal of abnormal psychology*, *110*(1), 124–135. <https://doi.org/10.1037//0021-843x.110.1.124>
- Stice, E., & Shaw, H. (2004). Eating disorder prevention Programs: A meta-analytic review. *Psychological Bulletin*, *130*(2), 206–227. <https://doi.org/10.1037/0033-2909.130.2.206>

- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5, pp. 481-498). Boston, MA: Pearson.
- Toole, A. M., & Craighead, L. W. (2016). Brief self-compassion meditation training for body image distress in young adult women. *Body image, 19*, 104-112. <https://doi.org/10.1016/j.bodyim.2016.09.001>.
- Trindade, I. A., Ferreira, C., & Pinto-Gouveia, J. (2020). Acceptability and preliminary test of efficacy of the Mind Program in women with breast cancer: an acceptance, mindfulness, and compassion-based intervention. *Journal of Contextual Behavioral Science, 15*, 162–171. <https://doi.org/10.1016/j.jcbs.2019.12.005>
- Trompetter, H. R., Ten Klooster, P. M., Schreurs, K. M. G., Fledderus, M., Westerhof, G. J., & Bohlmeijer, E. T. (2013). Measuring values and committed action with the engaged living scale (ELS): Psychometric evaluation in a nonclinical sample and a chronic pain sample. *Psychological Assessment, 25*, 1235-1246. <https://doi.org/10.1037/a0033813>
- Tylka, T. L. (2011). Positive psychology perspectives on body image. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (2nd ed., pp. 56–65). New York: Guilford Press.
- Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body image, 14*, 118-129. <https://doi.org/10.1016/j.bodyim.2015.04.001>
- VandenBos, G. R. (2007). *APA dictionary of psychology*. American Psychological Association.
- Voelker, D. K., Reel, J. J., & Greenleaf, C. (2015). Weight status and body image perceptions in adolescents: current perspectives. *Adolescent health, medicine and therapeutics, 6*, 149–158. <https://doi.org/10.2147/AHMT.S68344>
- Webb, J. B., Butler-Ajibade, P., & Robinson, S. A. (2014). Considering an affect regulation framework for examining the association between body dissatisfaction and positive body

image in Black older adolescent females: Does body mass index matter? *Body image*, 11(4), 426-437. <https://doi.org/10.1016/j.bodyim.2014.07.002>

Wise E. A. (2004). Methods for analyzing psychotherapy outcomes: a review of clinical significance, reliable change, and recommendations for future directions. *Journal of personality assessment*, 82(1), 50–59. https://doi.org/10.1207/s15327752jpa8201_10

WMA (2013). World Medical Association Declaration of Helsinki ethical principles for medical research involving human subjects. *JAMA: Journal of the American Medical Association*, 310(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>

Wood-Barcalow, N. L., Tylka, T. L., Augustus-Horvath, C. L. (2010). “But I like my body”: Positive body image characteristics and a holistic model for young-adult women. *Body Image*, 7(2), 106–116. <https://doi.org/10.1016/j.bodyim.2010.01.001>

GENERAL DISCUSSION

1. AN OVERVIEW AND GENERAL DISCUSSION OF THE MAIN FINDINGS
2. STRENGTHS, LIMITATIONS AND RECOMMENDATIONS FOR UPCOMING RESEARCH
3. CLINICAL IMPLICATIONS AND IMPLICATIONS TO THE FIELD OF BODY IMAGE
4. CONCLUSION

General Discussion

The first formal definition of body image dates to 1935, by the author Paul Ferdinand Schilder. Since then, the field of body image has had more than sixty years of fruitful research on the body image construct, its correlates, its consequences, its links to pathology and the ways in which we can intervene in it to treat the pathologies associated with it (mostly, eating disorders) (Cash & Smolak, 2011). Effectively, the history of research on body image is mostly marked by investigations on negative body image, specifically body image dissatisfaction. Without devaluing the past of body image research, which has undoubtedly clarified science and clinical practice in psychology and psychiatry (Cash & Pruzinsky, 2004; Thompson, 2004), in the 2000s, indications of the need for a shift in the approach in the field of body image emerged (Cash, 2004; Seligman, 2002). An investment in the research on positive body image was thus suggested (Levine & Smolak, 2002; Smolak & Cash, 2011). This new wave of research on body image was mainly driven by the belief that promoting a positive body image would allow the clinician to go beyond the limit of eliminating negative symptoms and neutralizing the pathology, and move to the space where it would become possible to promote mechanisms of personal growth and protection (Tylka & Wood-Barcalow, 2015a). In this sense, a positive body image not only would allow to maintain the therapeutic gains, but also to prevent the reappearance of difficulties associated with body image and, among others, with eating behavior.

Research on the topic of positive body image was then growing. Authors such as Tracy Tylka, Nichole Wood-Barcalow and Laura Avalos have enriched the field with valuable knowledge that allowed a clearer definition of the construct, as well as its various facets (Avalos et al., 2015; Tylka & Wood-Barcalow, 2015a; Wood-Barcalow et al., 2010). Additionally, scientific evidence about the correlates of positive body image and of its facet of body appreciation pointed to its possible origins and consequences (Tylka, 2018). Finally, positive body image began to be one of

the goals of therapeutic interventions, which proved their effectiveness (Albertson et al., 2014; Bush et al., 2014; Halliwell et al., 2015; Rodgers et al., 2018; Toole & Craighead, 2016). However, most of these interventions focused on the adult population and did not have as a therapeutic basis the promotion of adaptive psychological processes and emotional regulation mechanisms. Effectively, it is believed that it is in adolescence that the basic pillars of positive body image arise, and it is considered imperative the implementation of effective mechanisms to prevent difficulties associated with body image, in this developmental stage (Fenton et al., 2010).

Attempting to contribute to the field of positive body image and to surpass some of the shortcomings of previous interventions, this thesis aimed to answer a major research question, embodied in its title: **how can we educate for a positive body image?** To pursue the path that will lead us to this sought-after answer, the strategy implemented was to follow four main objectives:

- i. The first objective concerned the *exploration of the role of adaptive psychological processes and emotional regulation mechanisms in the definition of body appreciation*. In order to fulfill this objective, three empirical studies were conducted, two in adult samples and one in a sample of adolescents. These studies specifically studied the contributions of psychological inflexibility, self-compassion, and feelings of contentment and security in close social contexts to the positive body image facet of body appreciation.
- ii. Another main objective of the present study was to *better understand the link between body appreciation and indicators of disordered eating and perceived quality of life*. Specifically, following the line of the first main objective, four empirical studies were carried out in which the knowledge about the relationships between psychological processes and mechanisms of emotion regulation, body appreciation and indicators of disordered eating and quality of life was deepened.

- iii. One specific aim of the investigation was to validate a measure that would further allow the investigation of positive body image for the Portuguese population. Findings of the validation of the Functionality Appreciation Scale (Alleva et al., 2017) are discussed.
- iv. Finally, the main objective of the present investigation concerned the implementation and the test of efficacy of an intervention programme based on the promotion of psychological flexibility, compassionate skills, and mindfulness practice. this intervention was intended to have a positive impact on the levels of body appreciation of Portuguese female adolescents.

For each empirical study presented, a discussion was provided. Nonetheless, in this last Part of the Thesis, a synthesis, and a general discussion of the main findings of this study are presented. At the end of this section, a schematic model of the results found in the empirical studies is presented (Figure 1). The main strengths and limitations of the studies included in this Thesis are acknowledged and some considerations about future research are made. Finally, contributions to the field of body image and other practical implications are discussed.

1. An overview and general discussion of the main findings

1.1. The role of adaptive psychological processes and emotional regulation mechanisms in the definition of body appreciation

In the present section of the Thesis, each finding of the present study will be presented and discussed in detail regarding the role adaptive psychological processes and emotional regulation mechanisms in the definition of body appreciation.

Psychological flexibility

Some scientific evidence had already pointed to the relationship between **psychological flexibility**, a central construct of Acceptance and Commitment Therapy (ACT), and positive body image. More precisely, a common root for both constructs is assumed – the Buddhist philosophy - which conceptualizes Human suffering as being based on a cognitive and behavioral pattern guided by rigidity, avoidance and control (Tylka & Wood-Barcalow, 2015a). Making another bridge between the two constructs, Buddhism adds mindfulness as a process that allows the acceptance of unwanted events and the abandonment of strategies of control and modification of the experience, granting a values-based life. Overall, it is believed that psychological flexibility allows the consideration of perceived flaws in body appearance as being impermanent and temporary events, and as not constituting absolute truths about the self, reducing its power in determining the individual's conduct (Pearson et al., 2010).

Results of the empirical study I – “Turning self-compassionate engagement into action: Impact on body appreciation among Portuguese women” pointed to a **negative direct association between the measure of psychological inflexibility and body appreciation** (Figure 1), in a sample of adult women. Specifically, this shows that women who are not willing to experience the present moment fully and intentionally, i.e., difficult thoughts, feelings, memories, or bodily sensations, without unnecessary defense or avoidance, and to change to or persist in behavior that is consistent with one's chosen values (Hayes et al., 1999; 2006) have a lower tendency to display body appreciation attitudes. Indeed, psychological inflexibility is believed to be on the basis of Human suffering given that it constitutes a strict and inflexible way to deal with one's own beliefs (Hayes et al., 1999). This result was expected considering previous findings on the association between psychological inflexibility and variables associated with body image and eating behaviour. These were, for instance, the positive association between body image-related psychological inflexibility and drive for thinness and binge eating (Lucena-Santos et al., 2017), body dissatisfaction and disordered eating cognitions (Timko et al., 2014), eating disorder

symptoms (Ferreira et al., 2011; Sandoz, 2013), and psoriasis disability (Almeida et al., 2020). Regarding positive body image in particular, Webb and colleagues (2014) found a robust positive association between body image-psychological flexibility and body appreciation, and suggested that body image-psychological flexibility may allow the individual to accept the bodily characteristics that may be called into question, and engage in behaviors that are in accordance with the body appreciation value (Webb et al., 2014). Effectively, it is possible to understand the **similarity between the constructs of psychological flexibility and body appreciation**, and to imply that the **psychological processes involved in psychological flexibility are likely to contribute to the presence of body appreciation**. In detail, taking the definition of body appreciation - "an attitude of acceptance and respect in relation to the body, having a favorable and satisfactory opinion of the body regardless of the recognition of some undesired characteristics, and rejecting the media-promoted and socially- prescribed ideals of beauty in a body health protecting manner" - we manage not only to find the six psychological processes of the ACT model (Hayes et al., 2006, 2012), but also to understand that they are potentially relevant for its construction. Firstly, to be able to accept bodily characteristics, one must be capable of being mindful towards internal events and to envision the self as context, that is to recognize that in one's experience, negative and positive cognitions, memories, and emotions coexist, moment by moment. Also, these processes help to relate with the unwanted body-related experiences as an observer, i.e., with awareness and without becoming attached to certain internal events. Also, mindfulness further helps the individuals to understand these experiences as impermanent and temporary. To accept, it is effectively necessary to accept from an ACT perspective, that is, to have the intention to contact negative experiences related to the body, without falling into attempts to eliminate, modify or control them. Still at this point, wholly accepting one's body still requires the ability to defuse in relation to body-related cognitions, which means understanding that these cognitions are just some of the possible subjective interpretations of reality, and not the reality itself. Secondly, "having a favorable and satisfactory opinion of the body regardless of the recognition

of some undesired characteristics” also implies the adaptive processes of mindfulness, self-as-context, acceptance and cognitive defusion. More specifically, this attitude requires, once again, a broad view of one’s experience and of the self, without attachment or attribution of the value of absolute truth to any particular experience. It also requires the ability to coexist with the negative internal experience, i.e., with the existence of aspects that the individual likes less or dislikes about one’s own body. Finally, to be able to “reject the media-promoted and socially-prescribed ideals of beauty in a body health protecting manner”, one must be capable of identifying and defining one’s life values, namely those associated with respect, protection, care, and health, and allow these values to give meaning to and guide their actions. Also, in Study I, results pointed to a **mediating effect of psychological flexibility in the relationship between self-compassionate engagement and motivation, and self-compassionate action**. This finding might imply that sensitivity toward and motivation to engage with suffering (self-compassionate engagement) associates with the ability and wisdom to take action to reduce or prevent suffering (self-compassionate action) via a lower tendency to suppress, avoid or alter the form and/or frequency of undesired and painful emotions, thoughts, sensations, or memories (psychological flexibility). This finding goes in line with previous suggestions on the importance of psychological flexibility to the development of self-compassion (Yadavaia et al., 2014). This finding from our study may implicate that, in individuals who are sensitive towards and motivated to self-compassion, psychological flexibility may act by releasing the necessary action skills for self-compassionate action (attending, imagery/sensory experience, thinking/reasoning, behaving, and emotion/feeling; Gilbert 2014), and thus translate in a higher display of body appreciation in women.

Self-compassion

Self-compassion is another psychological process or affect regulation mechanism associated with positive body image in literature (Homan & Tylka, 2015; Pearson et al., 2010;

Tylka & Wood-Barcalow, 2015a; Webb et al., 2014). Tylka and Wood-Barcalow (2015) identified Buddhist philosophy as one of the origins of positive body image, and one of the most widely used definitions of self-compassion is precisely the Buddhist one: a sensitivity to suffering in self, with a commitment to try to alleviate and prevent it” (The Dalai Lama, 2001). The same authors argue that the contribution of self-compassion to positive body image goes beyond the one from a mindful attitude, given that it adds self-kindness and a sense of shared humanity (Neff, 2003). In studies that specifically evaluated the influence of self-compassion in body appreciation, results suggested that self-compassion may act as a buffer of the impact of body image-related threats (Pearson et al., 2010; Webb et al., 2014), and as a moderator of the relationship between body image related-threats and body appreciation (Homan & Tylka, 2015). These studies thus imply that self-compassion may help to protect body appreciation when in the present of body-related threats.

Several studies have explored the relationship between self-compassion and body appreciation in this Thesis (Figure 1), namely Study I – “Turning self-compassionate engagement into action: Impact on body appreciation among Portuguese women”, Study IV – “Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women”, Study V – “Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating”, and Study VII – “Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life”. In all of them **self-compassion appeared as being directly and positively associated with body appreciation**. These studies included samples of both adult women and adolescent girls. As we consider to be underlying the association of psychological flexibility with body appreciation attitudes, looking at the definition of body appreciation we can denote a possible contribution of a self-compassionate attitude. Specifically, according to Gilbert (2014), there is a set of attributes and competencies that must be present to consider a being as self-

compassionate. These are: care for well-being, sensitivity, distress tolerance, tolerance, empathy, non-judgment, and compassionate reasoning, behaviour, imagery, feeling and sensation skills. Building a bridge between these and body appreciation, there seems to be a suggestion that in order to accept and direct care and protection towards one's bodily features, even when recognizing undesired or disliked characteristics, one must exhibit tolerance towards distress, be sensitive towards discomfort or suffering, must be empathic, connected and attuned with distress, must have a non-judgmental attitude and care for one's own well-being. Also, to be able to protect one's body from unrealistic and harmful standards of beauty promoted by the media and the society, and keep on engaging in balanced and healthy behaviours, one must have the competences of compassionate reasoning, behaviour, and feeling. Specifically, to have these competences means to 'reason' in ways that are helpful to the body, pay attention to what is helpful to the body, behave in ways that are helpful to the body, and enabling appropriate feeling (which could be kindness or even anger, depending on the situation). The two other competencies, imagery and sensation, may also contribute for a higher body appreciation, since they imply using imagery and meditation to stimulate particular kinds of emotion systems and sensory work (i.e., breathing practices, body postures) to generate physical states which are conducive to affect regulation and compassion. Additionally, the link between self-compassion and body appreciation can also be understood in light of the Tripartite Model of Affect Regulation (Gilbert, 2014). This model argues that although the soothing system grows in parallel with the attachment system, self-directing kindness and understanding in times of suffering (self-compassion) also has the power to stimulate this important low-arousal emotion regulation system. Self-compassion is thus capable of activating the soothing system, and thus create an emotional state characterized by calming and soothing, feeling safe, peaceful, and content. Moreover, the activation of the soothing system implicates a calming of both incentive and resource-seeking and threat-protection systems (Gilbert, 2014; Porges, 2007). Taking into consideration this theoretical model, it seems realistic to believe that when a woman or a girl

self-directs compassion, the activation of her soothing system allows her to feel rested and safe in her social world, due to the calming of the systems associated with negative and activating and competition-evoking emotions. The activation of the soothing system may thus function to protect individuals from one important source of inferiority, shame and suffering, that is a context of social rank and competition-focused mentality. Social rank mentality and competitive attitudes are highly associated with body image-related difficulties (Ferreira et al., 2013; Pinto-Gouveia et al., 2014), due to the social relevance of body image in Western societies, in which the “thin ideal” is a synonym for health, success and power (Strahan et al., 2006). It thus seems reasonable to infer that the state of social calmness and safeness derived by the activation of the soothing-system may prevent malign levels of body dissatisfaction and body-defensive and concealing behaviours (in which disordered eating are included) and may constitute the optimal environment for women and girls to feel good about her bodies, to protect them against the harmful social ideals of beauty, and to appreciate the unique features of their body image. In Study I, results provided a deeper insight on the relationship between self-compassion and body appreciation. This study explored the roles of self-compassionate engagement and self-compassionate action in separate and found that **while self-compassionate actions have a direct and positive association with body appreciation, the association of self-compassionate engagement was only indirect.** In fact, one can observe that body appreciation's definition goes in line with the definitions of self-compassionate action, since to be actively appreciative, caring and protecting over perceived defects in appearance, one must be able to effectively turn attention, reasoning, and behaviours to the alleviation and prevention of body-related suffering (Gilbert, 2014). Also, taking into consideration the profound importance of the body image dimension in social evaluations in modern society, and the difficulties that women and girls face to attain the socially desired body appearance (Strahan et al., 2006), it seems legitimate to claim that the development of and engagement in body appreciation attitudes might imply more than self-compassionate motivation and engagement (which may derive from perceiving social

pressures to have a certain appearance), and actually the promptness to actively gather resources to deal with suffering, and take action to reduce and/or prevent it (self-compassion action).

Affiliative relationships and consequent social emotions

In Tylka and Barcalow's (2015) definition of positive body image, one of the aspects that was explicit as being associated with positive body image was interpersonal relationships. Specifically, it was argued that for the construction of a positive body image, interactions with others that are guided by attitudes of unconditional acceptance, in general and in relation to the body, seem to have a central role. Also, the importance of the individual being surrounded by others with a positive body image was mentioned.

This study explored the role of affiliative relationships and consequent social emotions resorting to several different measures. Study II – “The soothing affiliation system and body appreciation: recollected and present affect” explored the contributions of early memories of warmth and safeness, of current feelings of social safeness and pleasure, and of safeness/contentment positive affect to body appreciation. Study III – “Early memories of warmth and safeness, and current social safeness: Longitudinal contributions for girls’ body appreciation” explored longitudinally a model that hypothesized that current feelings of social safeness mediated the relationship between early memories of warmth and safeness and body appreciation. Study VI – “Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents’ well-being” explored the same model as Study III but using a longitudinal design. Study IV used a measure of early memories of warmth and safeness with peers to explain current feelings of social safeness and body appreciation. Study V – “Adolescent girls’ body appreciation: influences of compassion and social safeness, and association with disordered eating” studied the influence of compassion received from others in both current feelings of social safeness and body appreciation.

Firstly, regarding the roles of early memories of warmth and safeness, our results pointed to **a direct positive association of early memories of warmth and safeness with parents or within the family environment with body appreciation** (Figure 1), and only an indirect and positive association of early memories of warmth and safeness with peers and body appreciation. Although novel, in relation to body appreciation, this finding is indeed supported by Baldwin and Dandeneau's theoretical accounts (2005) on the enduring effects of early affiliative signals. These authors claim that early interactions that are characterized by care, protection, and a sense of belonging associate with later adaptive and satisfactory patterns of interpersonal relatedness and the use of effective emotion regulation mechanisms. In this sense, our result suggests that these early interactions may constitute an important influence in providing women and girls with the proper "know-how" to deal with negative body image-related influences that may threaten their body image. **Early memories of warmth and safeness with peers did not associate directly with the measure of body appreciation** (Figure 1). Although the importance of these specific recollections is well supported in literature (Ferreira et al., 2007), it seems that memories of childhood affiliative relationships with peers lose their explanatory power of body appreciation when in the presence of indicators of feelings of security and belonging in current relationships in the close social context. In fact, throughout almost all the studies of this Thesis, **current feelings of social safeness and pleasure experienced in close social relationships associated positively and directly with body appreciation** (Figure 1). Also, this variable also mediated the relationships established between early memories of warmth and safeness both within family environments and with peers, compassion received from others, and self-compassion, with body appreciation. This finding seems to highlight the relevance of the suggestion that body appreciation and, in a broad sense, positive body image, is associated with interpersonal factors (Iannantuono and Tylka 2012; Tylka & Wood-Barcalow, 2015a; Wood-Barcalow et al. 2010) and adds to prior knowledge by stressing the importance of experiencing emotions associated with past and present kind, safe, and soothing relationships to one's sense of safeness and warmth with one's own body. Once

again, we believe that social safeness and pleasure feelings associate positively with body appreciation since the recognition of one's own close social environment as being supportive, caring, understanding, and accepting may constitute the proper atmosphere for women and girls to relate to their own body in a flexible, caring, and protecting way. This phenomenon is the opposite of what happens to a woman or girl who finds herself in a relational environment ruled by feelings of inferiority, non-belonging, shame, and competition. In these environments, considering the social dimension of appearance in female interpersonal valuations, the use of one's own body as a context for acquiring a better social rank position is frequent, which often leads to body improvement behaviors with negative physical and psychological consequences (Ferreira et al., 2013; Pinto-Gouveia et al., 2014; Strahan et al., 2006). A complementary finding to this perspective was the direct and **positive association of safeness/contentment positive affect with body appreciation** (Figure 1). This type of positive affect also appeared as a mediator of the relationship between feelings of social safeness and pleasure and body appreciation (Study II). This type of affect is characterized by an emotional state of warmth, calming and safeness which is linked to the soothing system and is thought to be mediated by opiates and oxytocin (Gilbert et al., 2008). Acknowledging one of the theoretical frameworks considered in the present Thesis, that is Compassion Focused Therapy and the Tripartite Model of Affect Regulation that underlies it (Gilbert, 2009, 2014, 2020), this result seems to be another indicator that the activation of the soothing system, either by signs of affection and protection received from others, whether through self-directed compassion, seems to be linked to an attitude of body appreciation in women and adolescents.

1.2. The link between body appreciation and indicators of disordered eating and perceived quality of life

Disordered eating

The negative direct association between body appreciation and disordered eating behaviours had already been reported in literature, both in adult samples (Avalos et al., 2005; Swami et al., 2012; Tylka, 2013; Tylka & Kroon Van Diest, 2013) and adolescent samples (Baceviciene & Jankauskiene, 2020).

Two of the studies presented in this Thesis explored the **association between body appreciation and disordered eating** (Figure 1), one in a sample of women, and the other in a sample of girls. Both studies explored this association within models that also explored the roles of emotion regulation mechanisms. These were Study IV – “Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women” and Study V – “Adolescent girls' body appreciation: influences of compassion and social safeness, and association with disordered eating”. Although this is not a novel finding, this association was found within the framework of integrative path models that simultaneously explained the influence of psychological and emotion regulation processes on body appreciation, and the influence of all these variables on disordered eating. Therefore, the negative association between body appreciation and disordered eating was expected. Indeed, the central role of dissatisfaction with body image in the display of eating disorder symptoms is well known (Cash & Pruzinsky, 2004; Mäkinen et al., 2012). Still, we know the peremptory influence that the beauty standards imposed by society have on the etiology of eating disorders, as well as the unhealthy behaviors in which individuals engage to deal with these societal demands (Ferreira et al., 2013; Pinto-Gouveia et al., 2014; Strahan et al., 2006). In this sense, it becomes natural that body appreciation, being an attitude of acceptance in relation to the natural Human dissatisfaction

with body image, and the adoption of health and balanced-focused behaviors in the face of potentially malignant demands of society, presents a negative relationship with the display of disordered eating behavior.

Quality of life

Positive body image and, specifically, body appreciation was previously found to associated with perceived life satisfaction and mental well-being (Davis et al., 2019; Urke et al., 2021). In contrast, literature has widely reported the association of negative body image with poor well-being and quality of life (Mond et al., 2013; Mond & Hay, 2007).

In the present investigation (Figure 1), the Study VI – “Potential contributing roles of early affiliative memories, social safeness and body appreciation to adolescents’ well-being” found that body appreciation associated positively with psychological, physical, and school environment quality of life in a sample of female and male adolescents. The Study VII – “Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life” found that body appreciation associated positively with psychological, physical, and social relations’ quality of life. The result that body appreciation is also important for the definition of boys’ well-being and quality of life was a novel finding. Nonetheless, this finding can be understood considering studies that reported boys also suffer from social negative influences which have impact on their drive for muscularity and weight concerns (e.g., Schaefer and Salafia, 2014), for instance. In this line, it was expected that having a positive body image would positively influence the perception of quality of life. In our studies, the positive relationship between body appreciation with quality of life was found within an emotion regulation framework, i.e., several emotion regulation mechanisms (early affiliative memories, social safeness, self-compassion) were found to associate with higher body appreciation which, in turn, associated with higher perceived quality of life. Once again, these were expected results taking into account the

centrality of the body image-dimension in social comparisons and evaluations that the individual makes in relation to the self and to others (Thompson et al., 1999). In this line, it is possible to assume that a holding an attitude of appreciation, care, acceptance, and protection towards one's body image may function as a potent protective factor against social pressures to attain a certain appearance or body shape and weight and contribute to a positive assessment of one's own functioning, affect and relationships with the world in one's daily lives.

1.3. The validation of the Functionality Appreciation Scale for the Portuguese adult population

One specific aim of the present investigation was to create or validate a measure that would contribute for the study of positive body image in the Portuguese population. The measure that was validated for the Portuguese adult population was the **Functionality Appreciation Scale** (FAS; Alleva et al., 2017). The validation study was presented in the Study VII – “Functionality Appreciation: Portuguese validation of the FAS and cross-national research between Italy and Portugal on its associations with self-compassion, body appreciation and quality of life”. This study also contemplated a path analysis that explored the associations of self-compassion and functionality appreciation with perceived quality of life, and whether this association was mediated by body appreciation, in a sample of Italian and Portuguese adults. This study found global and local adjustment indices that indicated the suitability of the FAS' factorial structure, and that the FAS was positively associated with body appreciation, self-compassion and perceived quality of life, supporting the assumption that the Portuguese version of the FAS presents robust psychometric qualities. Bearing in mind that, in addition to the Body Appreciation Scale, there were no other scales for assessing facets of positive body image in Portugal, the validation of this scale seems to constitute a new avenue for future studies in the area of positive body image and body functionality. These studies will benefit, for example, from the use of different samples, such as populations with some level of physical disability, or chronic conditions. The Study VII also

explored a theoretical model that considered that self-compassion and functionality appreciation would associate positively with body appreciation, and that these variables would associate positively with three dimensions of perceived quality of life. Results of this analysis reinforced the already found **direct, positive and strong association of functionality appreciation with body appreciation** (Figure 1) (Alleva et al., 2017). This study added to literature by showing that in both Italian and Portuguese adults, functionality appreciation directly associated with the physical dimension of the perceived quality of life. This result was understood taking into account that functionality appreciation holds a strong connection with one's perception about bodily functions, skills and abilities, and so does the perception of physical quality of life (e.g., Alleva, et al., 2015). The association of functionality appreciation with the other two dimensions of quality of life was only indirect, mediated by body appreciation. This results thus highlights the association between body appreciation and perceived quality of life.

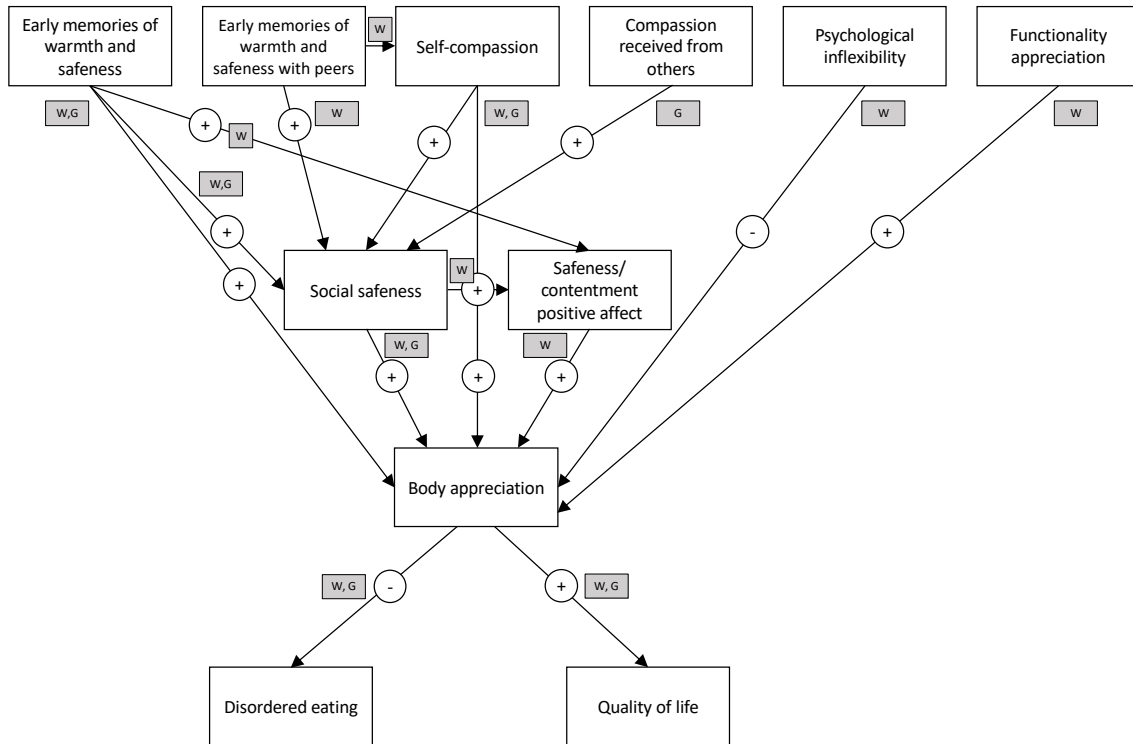


Figure 1. Model of the impact of psychological processes and emotion regulation mechanisms in body appreciation, and of body appreciation in indicators of disordered eating and quality of life. The dashed lines are based on path analysis' findings of the present Thesis. Most associations represented in this model are circular. The symbol "+" represents direct positive associations and the symbol "-" represents direct negative associations. Findings in samples of women are represented by a "W", and findings in samples of adolescent girls are represented by a "G".

1.4. Implementation and evaluation of the efficacy of the #KindGirlsInAction: an intervention program based on the promotion of psychological flexibility, compassionate skills, and mindfulness practice, to promote body appreciation in adolescent girls

As previously mentioned, the main goal of the present investigation was to delivery and test the efficacy of an intervention programme aimed at promoting adolescent girls' body

appreciation – the #KindGirlsInACTion. In terms of the theoretical aspects that it aimed at following, the #KindGirlsInACTion intended to combine the main constructs and technical outlets of Compassion Focused Therapy (Gilbert, 2009) and Acceptance and Commitment Therapy (Hayes et al., 1999), with the practice of mindfulness (Kabat-Zinn, 1982). To note that this programme avoided the direct discussion of the body image thematic. Specifically, body image only appeared in some of the examples given by the facilitators to illustrate undesired internal experiences, psychological processes, and emotion regulation mechanisms.

The entire process of application and test of efficacy of the intervention was carried out in accordance with the ethical and deontological standards recommended by the competent authorities, and the controlled trial was registered at the appropriate instance. The intervention was developed by the Ph.D. student and other members of the research team, under the supervision of experts in third wave cognitive-behavioural therapies and in group psychotherapy with adolescents. The intervention was delivered to the intervention group along nine weeks, with one session of forty-five minutes per week. These sessions were delivered by two trained facilitators. Aside from attending the sessions, participants would complete tasks and practice mindfulness between sessions. Both groups would be evaluated at three different moments: M0, the pre-intervention evaluation; M1, the post-intervention assessment; and M2, a three-month follow-up assessment after the intervention. The recruitment process resulted in the agreement to participate of 256 female students, aged between 12 and 18, who attended middle education and secondary schools in the central region of Portugal. Of these, 109 students were allocated to the intervention group, and 147 students were allocated to the control group. Due to several factors, such as withdrawal from participation and lockdown due to COVID-19 pandemic, a total of 52 students attended the intervention and completed the assessment protocol at M1, M2 and M3; and 62 students completed the assessment protocol at M1, M2 and M3. The collected data were then entered into a database and analyzed. This analysis resulted in a study comparing changes in psychological processes, mechanisms of emotional regulation, social safeness, and

body appreciation between the intervention and the control groups: Study VIII - "Change in emotion regulation, social safeness, and body appreciation after the #KindGirlsInACTion programme: Findings from a controlled trial with female adolescents".

The Study VIII - "Change in emotion regulation, social safeness, and body appreciation after the #KindGirlsInACTion programme: Findings from a controlled trial with female adolescents" resulted in some insights on the efficacy of the programme #KindGirlsInACTion. Specifically, results of this study showed that, compared to a wait list control group, the adolescents who received the intervention showed increased levels of self-compassion and of social safeness, both at the end of the intervention and three months after the intervention. Body appreciation levels in the intervention group increased during the program, and were maintained over time, remaining higher than the body appreciation levels of the control group, which deteriorated over time. In the control group there was a deterioration of self-compassion, social safeness, and body appreciation scores over time. The time x condition effects were not significant regarding changes in psychological inflexibility.

First, to the extent of our knowledge, this was the **first test of efficacy of an intervention combining Acceptance and Commitment Therapy, Compassion Focused Therapy, and mindfulness to promote adolescent girls' body appreciation**. Overall, the results point to the adequacy and effectiveness of combining the two third wave psychotherapies, with the practice of mindfulness, in a fully experiential, interactive, and age-tailored school-based programme, in an intervention to promote girls' body appreciation. This favorable recognition of the success of the intervention is mainly based on the results found in terms of self-compassion, social safeness and body appreciation, all indicators of psychological well-being and good psychosocial functioning.

Self-compassion

The effectiveness of the #KindGirlsInACTion is firstly underlined by results on self-compassion. **Self-compassion scores increased in participants of the intervention group, both along the course of the programme, and between post-intervention and follow-up assessments.** Self-compassion scores in the control group decreased over time. These were expected results since the programme incorporates several sessions on the thematic of compassion, namely the sessions III – “Emotion regulation systems – How does the mind work?”, IV – “Introduction to the concept of compassion – Remember yourself to be kind”, and V – “Self-compassion and compassion for others – Remind yourself to be kind to yourself and others”. These sessions comprise important psychoeducational moments on the themes of the evolutionary and adaptive roles of emotions, the Tripartite Model of Affect Regulation, definitions of compassion and self-compassion. Also, exercises, group dynamics and practices in these sessions aimed at promoting participants’ self-compassion. Some of them were, by instance, “letter from a friend”, “letter to myself”, “self-compassion journal”, and loving-kindness meditations (Appendix A – The #KindGirlsInACTion Programme). These sessions, as well as the exercises that composed them, were evaluated by the participants as very useful, with session V receiving the “most useful and appreciated session of the programme” evaluation (Mendes et al., 2022).

Feelings of social safeness and pleasure in close social contexts

Social safeness scores increased in participants of the intervention group, both along the course of the programme, and between post-intervention and follow-up assessments. In contrast, levels of social safeness and pleasure in the control group decreased over time. The analysis of social safeness scores aimed at evaluating the fulfillment of one of the objectives of the programme, which was to improve the quality of interpersonal relationships in the close social context. The programme intended to promote affiliative relationships, i.e., guided by attitudes and behaviors of understanding, kindness, protection, and acceptance, instead of attitudes and

behaviors of criticism, opposition, confrontation, and competition. We consider that the significant time \times condition result on social safeness scores was an expected result: effectively, the #KindGirlsInACTion is guided by countless moments that promote group union and the approximation between peers. The design of the programme promotes this proximity, namely by encouraging participants to transparently share their personal experiences (success, vulnerability, etc.), and to listen empathically and compassionately to experiences reported by peers. Also, several exercises aimed directly at the end of improving interpersonal relationships, namely the "link web" exercise, the "compassionate friend" meditation, the "compassionate listening" exercise, etc. (Appendix A – The #KindGirlsInACTion Programme). It is worth mentioning an aspect that we believe points to the stability of the effects of the #KindGirlsInACTion programme, which is related to the fact that the social safeness scores remained high in the follow-up assessment in the intervention group. Since this assessment took place during a period of lockdown due to the COVID-19 Pandemic, this finding seems to indicate that the gains in terms of participants' perception of feelings of social safeness and pleasure were stable and resistant to this particular challenge.

Body appreciation

The main aim of the intervention was to increase participants' levels of body appreciation. Results of the controlled trial showed that the intervention group and the control group had significantly different tendencies regarding body appreciation scores. **Participants in the intervention group had their levels of body appreciation increased from the pre-intervention assessment to the post-intervention assessment, and from the post-intervention assessment to the follow-up assessment.** Participants in the control group had their levels of body appreciation decreased over time. Because the programme did not directly cover the aspects of positive body image, nor body appreciation, **we believe that the gains in body appreciation were due to the increases in levels of self-compassion and social safeness.** Also, although the controlled trial

revealed no significant time x condition effects for the psychological inflexibility variable, **we believe that the training in adaptive psychological processes related to Acceptance and Commitment Therapy also contributed to the favorable result regarding the levels of body appreciation.**

Psychological inflexibility

Contrary to what was expected, there was no significant time x condition effect regarding psychological inflexibility scores in the experimental study, pointing to the fact that **the #KindGirlsInAction was not successful in reducing levels of psychological inflexibility.** We consider that some factors may have influenced this outcome. First, the scale used to assess psychological flexibility in the experimental study accesses this variable through items that reflect the processes of avoidance and cognitive fusion (Greco et al., 2008). However, we consider that the most promoted psychological processes in the programme were values and committed actions (Appendix A – The #KindGirlsInAction programme - Structure and contents of the intervention programme). In this line, the authors consider that there are other scales that access Acceptance and Commitment Therapy (ACT) processes that would be more fitted to the specific aims of this controlled trial (such as the CAQ, McCracken et al., 2015; the ELS, Trompetter et al., 2013; or the CompACT, Francis et al., 2016). However, these are not validated for the adolescent Portuguese population. Second, it is indeed considered to be challenging to adapt ACT for the adolescent population. Only few studies were conducted using ACT with adolescents, and literature considers that more research is needed to define its appropriateness for this age group, since ACT appears to be more fitted for individuals with more advanced insight and abstract reasoning (Halliburton & Cooper, 2015). Finally, although there was no reduction in psychological inflexibility scores for the participants in the intervention group, the programme included several sessions focused on this topic, namely sessions from VI to IX. These sessions were positively evaluated in terms of their structure and content in the acceptability study (Mendes et al., 2022).

2. Strengths, limitations, and recommendations for upcoming research

2.1. Strengths

This Thesis aimed at contributing to the exploration of the positive body image phenomenon in Portuguese women and adolescents, following a sequential rationale and using robust methodologic procedures. First, although empirical studies are presented in this thesis in the order *i)* influences of psychological processes and mechanisms of emotional regulation on body appreciation, *ii)* impact of body appreciation on disordered eating and quality of life, and *iii)* study of efficacy of an intervention programme to promote body appreciation in female adolescents, the investigation followed another temporal order. Specifically, studies were first conducted using adult samples, and only then explored the main hypothesis using adolescent samples. We believe that by knowing the relationships between the variables in adulthood, we can define more precisely which aspects to promote and which factors to prevent in interventions in the adolescent stage. Furthermore, cross-sectional studies were conducted first, followed by the longitudinal study, and only then the experimental study. From a chronological perspective, preliminary data provided by cross-sectional and longitudinal studies informed the development of the intervention programme, as well as its implementation and test of efficacy. Overall, we believe that these strategies contributed to a structured and articulate development and integration of the empirical studies presented in this Thesis.

Regarding the methodology used in the present investigation, first, all procedures strictly followed the ethical and deontological recommendations of the American Psychological Association (2017), the World Medical Association (WMA, 2013), and the Portuguese Psychological Association ("Ordem dos Psicólogos Portugueses", OPP) (2016). The empirical studies presented in this Thesis used psychological assessment instruments validated for the population in study, that were validated and provided data on its reliability and adequacy prior to their use in the present investigation. Finally, the appropriateness of procedures of data

analysis may also be considered a strength of this investigation. In fact, data provided by participants were analyzed using rigorous and robust analysis methodologies.

Considering each empirical study presented, one by one, we can refer to some findings that underline the strengths of the present investigation. Specifically, with **Study I** we were able to deeply analyze the different roles of self-compassionate engagement and self-compassionate actions in body appreciation of adult women. In this distinction, the results seem to suggest the interesting role of psychological flexibility in a potential conversion of compassionate motivation into specific compassionate actions, a model that overall seems to contribute to a more salient body appreciation in adult women. **Study II** seemed to indicate that both memories of early affiliative relationships and affiliative emotions experienced in current relationships seem to contribute to greater body appreciation in adults, highlighting the important role of safeness/contentment affect in these associations. This study seems to indicate a potential intervention tool for the promotion of body appreciation: although the roles of both early memories and current emotional experiences are highlighted, it would not be plausible to intervene at the level of early memories, with social safeness emerging as a potential target of interventions to promote positive body image. **Study III** came to longitudinally confirm the mediating role of social safeness in the relationship between early memories of warmth and safeness and body appreciation in adolescents. This study was particularly important in terms of validating the suggestion that the cultivation of social safeness could contribute to the promotion of body appreciation in adolescents. **Study IV** aimed to explore the adequacy of an integrative model in which the influence of early memories of warmth and safeness with peers, self-compassion, and social safeness in body appreciation of adult women is studied, and whether this model is adequate in the explanation of lower levels of disordered eating. The results of Study IV not only confirmed previous findings of this Thesis regarding the relationship between emotion regulation and body appreciation, but also reiterated the potential protective role of body appreciation in relation to the engagement in disordered eating behaviors. **Study V** explored a

similar model, this time in a sample of adolescents. This study highlights the finding on the importance of compassion from by others in body appreciation, an effect that appears to be mediated by feelings of social safeness. Furthermore, the direct negative association between body appreciation and disordered eating in adolescents was reinforced. **Studies VI and VII** explored models that associated emotion regulation mechanisms, body appreciation and quality of life. Their results pointed, once again, to the importance of emotion regulation mechanisms for the definition of body appreciation, both in adolescents (of both genders) and in adults, and also to their positive impact on several dimensions of perceived quality of life. Study VII also resulted in the validation of an instrument that allows continuing the research work on positive body image in the Portuguese population - the Functionality Appreciation Scale, by Alleva and colleagues (2017). Finally, **Study VIII** presents the test of efficacy of #KindGirlsInACTion, a nine-week school-based programme for female adolescents. The results of this study point to the efficacy of an intervention that cultivates adaptive psychological processes and emotional regulation mechanisms associated with compassion, and aims at promoting body appreciation in female adolescents.

Most remarkably, one of the products of this thesis is extension of actual knowledge through the demonstration of the efficacy of a psychotherapeutic programme with strong theoretical basis from two empirically validated third wave psychotherapies, and mindfulness practice, that was shown to be effective in promoting positive body image in female adolescents. Although the manifestations of the body image phenomenon are markedly different between boys and girls, the area of body image has a significant impact on the overall functioning of both sexes (Schaefer & Salafia, 2014). Bearing in mind that the tested intervention programme does not directly address the issues of body image, i.e., it focuses on the cultivation of general psychological processes and emotional regulation mechanisms, we believe that the intervention programme could be applied in different populations with the same purpose, such as the male adolescent population.

2.2. Limitations and recommendations for upcoming research

The limitations of the present studies and recommendations for future research will be presented according to the experimental design of the empirical studies presented. However, one limitation of the present investigation is related to a transversal aspect to all the studies presented, that is the exclusive use of self-report measures in the evaluation of the participants. Self-report measures are susceptible to measurement error and social desirability bias, namely related to the shared variance between those self-report measures, and thus upcoming studies should use other methods of assessment, such as observational methods or interviews, and other sources of information (e.g., parents, teachers, peers) to confirm our findings.

Cross-sectional studies (Studies I, II, IV, V, VI and VII) present specific limitations. Indeed, this design does not allow the inference of causality or conclusions on the direction of the tested associations. In this line, upcoming studies should examine the stability of the explored associations over time and after the delivery of an intervention. In cross-sectional studies, the use of convenience samples also constitutes a limitation that should be addressed in future studies, by using more representative samples of women and adolescent girls. Although most of the presented studies used diverse sample of Portuguese women and girls, face-to-face recruitment only took place in institutions, companies, and schools in the centre region of Portugal, a region with a prominently higher socioeconomic level, compared to other regions. This limitation may restrict the generalizability of the results to the entire Portuguese adolescent population, and findings require confirmation in a broader sample of Portuguese women and girls.

Regarding the longitudinal study (Study III), some limitations are to be noted. Firstly, although this study was conducted along twelve months, with three distinct assessment moments, upcoming studies should consider using repeated observations over a longer period of time. Also, this study explored only a few of the variables that may be involved in the complex and multi-caused phenomenon of body appreciation. Upcoming investigations thus should invest

in the study of other mechanisms of emotion regulation and factors that may influence the positive body image of adolescents.

Regarding the experimental study presented in this Thesis that concerns the test of efficacy of the #KindGirlsInACTion programme, some limitations should be considered and overcome in the future. Beside the previously mentioned limitations (the use of self-report measures, the use of a non-generalizable sample of adolescent girls, etc.), the non-randomization of participants to the intervention and control conditions, the relatively small sample size and the absence of longer-term follow-up assessments represent limitations that should be addressed in the future. Moreover, investigating the process of change should also be considered in further studies, as the #KindGirlsInACTion programme intended to promote body appreciation through the cultivation of psychological flexibility and of compassion abilities. Finally, future studies should also explore the impact of the #KindGirlsInACTion in the later manifestation of disordered eating behaviours, in order to assess its suitability as an eating disorders prevention programme.

Additionally, and as mentioned above, the conduction of the present doctoral studies was interrupted by the COVID-19 Pandemic. This important event compromised, for example, the possibility of increasing the sample of the experimental study, since the implementation of the #KindGirlsInACTion programme was interrupted due to a period of lockdown. As the experimental study participants responded to the follow-up assessment in a period of lockdown, we believe that the profound changes in social functioning in this period may have influenced the results of our controlled trial. In this sense, we believe that the study should be replicated in the future in a period of time without this type of constraints.

3. Practical implications and implications to the field of body image

In general, the results obtained in this investigation not only add to knowledge based on evidence to the current state of the art, but also, raises new questions that should be paid attention in future investigations.

The comprehensive and integrative model supported by the results of our study opens a path to an area of research with promising results. In fact, to the best of our knowledge, this is the first investigation that aimed at exploring positive body image in Portuguese women and adolescents. Also, the combined exploration of psychological processes and emotion regulation mechanisms as important factors that may contribute for women and girls' body appreciation sheds light on potential tools to use in intervention and prevention programmes.

First, the studies presented provide robust empirical data regarding the correlates of body appreciation in both women and adolescent females. Bearing in mind that positive body image seems to hold an important influence on the psychological well-being and mental health of individuals, and on the prevention of disorders associated with negative body image and eating behavior, by providing a clearer insight into the psychological processes involved in body appreciation, the present investigation seems to suggest the use of therapeutic techniques to promote psychological flexibility and compassion when intervening in these areas. Furthermore, some potential mediators and mechanisms of change are suggested, expanding the range of factors to which attention should be paid in interventions in the field of body image, namely aspects related to affiliative relationships and social emotions.

Results from the application of the #KindGirlsInAction programme and from the test of its efficacy further extend the wide range of evidence-based interventions in which the Acceptance and Commitment Therapy, the Compassion Focused therapy and mindfulness training can be utilized. Effectively, considering that the intervention programme envisaged in this Thesis does not directly focus on the theme of body image, the cultivation of psychological

processes and adaptive emotional regulation mechanisms, and the promotion of the establishment of affiliative relationships in the close social context, will potentially have protective effects at other levels, providing female adolescents with effective skills to deal with painful internal experiences, challenges, and adversities.

In a preventive perspective, the insights on the importance of the recollections of early relationships that were characterized by a sense of warmth, safeness, care, and protection, for later adaptive emotion regulation and body appreciation that derive from the present investigation, can inform parents and caregivers of the value of parenting that are based in affiliation, compassion, and mindfulness.

Furthermore, the present study seems to reinforce the relevance of intervening in the developmental period of adolescence, not only because it is a period marked by profound changes at the psychological, social and physical levels which are reflected on self-perceptions of body image, but also because the present study seems to denote a certain level of acceptability on the part of adolescents in relation to psychotherapeutic interventions to promote protective factors. Additionally, we consider that the findings from the controlled trial point to a considerable degree of malleability regarding the acquisition of new skills and abilities, and the valence of their body image perceptions, in adolescent girls. In this line, considering that the #KindGirlsInACTion is a manualized school-based programme, its application may prove to be particularly useful in different contexts, namely the wider school context and the clinical context.

4. Conclusions

The field of positive body image, although recent, emerges as highly promising. There are many areas of application, from the promotion of well-being and mental health, with lasting effects in terms of guaranteed protection against body image-related threats, to the treatment of psychological disorders associated with body image and eating behavior, with the possibility of prevention of relapses and the restoration of positive health.

Despite being normative, body image dissatisfaction has profoundly harmful effects in several areas of the individual's functioning, impacting his/her mental and physical health, and his/her relationships. Effectively, body image is the weight and measure of social comparisons and, especially in adolescence and for girls, the body seems to hold the potential to dictate who one really is, inside and out. What if it could be different? If we could provide women, from an early age, with the right tools to face, one by one, the threats imposed on their appearance and body? These are questions obviously not answered by the findings of the present Thesis. However, we believe that we have managed to take one more step on this journey.

The present investigation took a step forward by highlighting important correlates of positive body image. Specifically, among samples of adult women and of female adolescents, several processes and mechanisms of emotion regulation were directly and positively associated with body appreciation, namely early memories of warmth and safeness, self-compassion, social safeness and pleasure and safeness/contentment positive affect. A direct and negative association was found between psychological inflexibility and body appreciation. Additionally, body appreciation was shown to associate negatively with disordered eating behaviours and positively with several dimensions of perceived quality of life. These findings served an important purpose of helping to conceptualize and to develop a psychotherapeutic programme aimed at promoting female adolescents' body appreciation. The tested programme in the context of this investigation was a school-based intervention grounded in the cultivation of psychological

flexibility and compassion and in the practice of mindfulness. The results of the controlled trial revealed that in the girls who attended the intervention, the levels of self-compassion, social safeness and pleasure, and body appreciation increased throughout the nine weeks of the programme, continuing to increase until a follow-up assessment, three months after the conclusion of the intervention. These data seem to further support the the choice of path in an attempt to improve the body image of Portuguese adolescents.

Although some limitations in the present investigation should be considered when interpreting novel data, we consider that the present Thesis enriches the scientific area of body image, allowing a deeper clarification about the roots and ramifications of body appreciation. We believe that the present findings may have implications at the level of future investigation, as well as at the clinical and community levels. Finally, we consider that there is robust empirical evidence of the usefulness of the #KindGirlsInACTion programme in improving body image in Portuguese female adolescents, so we consider that it is imperative to continue investing in application of the #KindGirlsInACTion and in the plan for potentially useful future adaptations of the intervention.

REFERENCES

A

- Albertson, E. R., Neff, K. D., & Dill-Shackleford, K. E. (2015). Self-compassion and body dissatisfaction in women: A randomized controlled trial of a brief meditation intervention. *Mindfulness*, *6*(3), 444–454. <https://doi.org/10.1007/s12671-014-0277-3>
- Alleva, J. M., Martijn, C., Van Breukelen, G. J., Jansen, A., & Karos, K. (2015). Expand Your Horizon: A programme that improves body image and reduces self-objectification by training women to focus on body functionality. *Body image*, *15*, 81-89. <https://doi.org/10.1016/j.bodyim.2015.07.001>
- Alleva, J. M., Sheeran, P., Webb, T. L., Martijn, C., & Miles, E. (2015). A Meta-Analytic Review of Stand-Alone Interventions to Improve Body Image. *PloS one*, *10*(9), e0139177. <https://doi.org/10.1371/journal.pone.0139177>
- Alleva, J. M., Tylka, T. L., & Kroon Van Diest, A. M. (2017). The Functionality Appreciation Scale (FAS): Development and psychometric evaluation in U.S. community women and men. *Body image*, *23*, 28–44. <https://doi.org/10.1016/j.bodyim.2017.07.008>
- Allgood-Merten, B., Lewinsohn, P. M., & Hops, H. (1990). Sex differences and adolescent depression. *Journal of abnormal psychology*, *99*(1), 55.
- Almeida, V., Leite, Â., Constante, D., Correia, R., Almeida, I. F., Teixeira, M., Vidal, D. G., Sousa, H., Dinis, M., & Teixeira, A. (2020). The Mediator Role of Body Image-Related Cognitive Fusion in the Relationship between Disease Severity Perception, Acceptance and Psoriasis Disability. *Behavioral sciences (Basel, Switzerland)*, *10*(9), 142. <https://doi.org/10.3390/bs10090142>
- American Psychological Association (2017). *Ethical principles of psychologists and code of conduct*. <https://www.apa.org/ethics/code/>

Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The body appreciation scale: Development and psychometric evaluation. *Body image*, 2(3), 285-297. <https://doi.org/10.1016/j.bodyim.2005.06.002>

B

Baceviciene, M., & Jankauskiene, R. (2020). Associations between Body Appreciation and Disordered Eating in a Large Sample of Adolescents. *Nutrients*, 12(3), 752. <https://doi.org/10.3390/nu12030752>

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27–45. <https://doi.org/10.1177/1073191105283504>

Baldwin, M. W., & Dandeneau, S. D. (2005). Understanding and Modifying the Relational Schemas Underlying Insecurity. In M. W. Baldwin (Ed.), *Interpersonal cognition* (pp. 33–61). Guilford Press.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: A revised measure of psychological flexibility and experiential avoidance. *Behavior Therapy*, 42, 676-688. <https://doi.org/10.1016/j.beth.2011.03.007>

C

Canavarro, M. C., Simões, M. R., Vaz Serra, A., Pereira, M., Rijo, D., Quartilho, M. J., & Carona, C. (2007). Instrumento de avaliação da qualidade de vida da Organização Mundial de Saúde: WHOQOL-Bref. *Avaliação psicológica: Instrumentos validados para a população portuguesa*, 3, 77-100.

Carapeto, M. J., Domingos, R., & Veiga, G. (2020). Is the Effect of Body Dissatisfaction on Depressive Symptoms Dependent on Weight Status? A Study with Early-to-Middle

- Adolescents. *European journal of investigation in health, psychology and education*, 10(4), 1020–1034. <https://doi.org/10.3390/ejihpe10040072>
- Cash, T. F. (2002). Cognitive behavioral perspectives on body image. In T. F. Cash & T. Pruzinski (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 38–46). New York: Guilford Press.
- Cash, T. F. (2002). The situational inventory of body-image dysphoria: psychometric evidence and development of a short form. *The International journal of eating disorders*, 32(3), 362–366. <https://doi.org/10.1002/eat.10100>
- Cash, T. F. (2004). Body image: past, present, and future. *Body image*, 1(1), 1–5. [https://doi.org/10.1016/S1740-1445\(03\)00011-1](https://doi.org/10.1016/S1740-1445(03)00011-1)
- Cash, T. F. (2011). Cognitive-behavioral perspectives on body image. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 39–47). The Guilford Press.
- Cash, T. F., & Pruzinsky, T. (Eds.). (1990). *Body images: Development, deviance, and change*. The Guilford Press.
- Cash, T. F., & Pruzinsky, T. (Eds.). (2004). *Body image: A handbook of theory, research, and clinical practice*. Guilford press.
- Cash, T. F., & Smolak, L. (Eds.). (2011). *Body image: A handbook of science, practice, and prevention* (2nd ed.). The Guilford Press.
- Castilho, P., Pinto-Gouveia, J., & Duarte, J. (2015). Evaluating the multifactor structure of the long and short versions of the self-compassion scale in a clinical sample. *Journal of Clinical Psychology*, 71, 856-870. <https://doi.org/10.1002/jclp.22187>
- Cook-Cottone, C. P. (2015). Incorporating positive body image into the treatment of eating disorders: A model for attunement and mindful self-care. *Body image*, 14, 158-167. <https://doi.org/10.1016/j.bodyim.2015.03.004>

Cooper, P. J., & Taylor, M. J. (1988). Body image disturbance in bulimia nervosa. *The British Journal of Psychiatry*, *153*(Suppl 2), 32–36.

Cunha, M., Galhardo, A., Gilbert, P., Rodrigues, C., & Matos, M. (2021). The flows of compassion in adolescents as measured by the compassionate engagement and action scales. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. Advance online publication. <https://doi.org/10.1007/s12144-021-02097-5>

Cunha, M., & Santos, A. M. (2011). Estudo das qualidades psicométricas da versão portuguesa do Avoidance and Fusion Questionnaire for Youth (AFQ-Y). *Laboratório de Psicologia*, *9*(2), 133-146. <https://doi.org/10.14417/lp.629>

Cunha, M., Xavier, A., Martinho, I., & Matos, M. (2014). Measuring positive emotional memories in adolescents: Psychometric properties and confirmatory factor analysis of the Early Memories of Warmth and Safeness Scale. *International Journal of Psychology and Psychological Therapy*, *14*, 245-259.

D

Davis, L. L., Fowler, S. A., Best, L. A., & Both, L. E. (2020). The role of body image in the prediction of life satisfaction and flourishing in men and women. *Journal of Happiness Studies*, *21*(2), 505-524. <https://doi.org/10.1007/s10902-019-00093-y>

F

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: interview or self-report questionnaire?. *The International journal of eating disorders*, *16*(4), 363–370.

Ferreira, C., Cunha, M., Marta-Simões, J., Duarte, C., Matos, M., & Pinto-Gouveia, J. (2017). Development of a measure for the assessment of peer-related positive emotional memories. *Psychology and Psychotherapy: Theory, Research and Practice*. <https://doi.org/10.1111/papt.12146>

- Ferreira, C., Gouveia, J. P., & Duarte, C. (2011). The validation of the Body Image Acceptance and Action Questionnaire: exploring the Moderator Effect of Acceptance on Disordered Eating. *International Journal of Psychology and Psychological Therapy*, *11*(3), 327-345.
- Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (2013). Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. *Eating behaviours*, *14*(2), 207-210. <https://doi.org/10.1016/j.eatbeh.2013.01.005>
- Ferreira, C., Trindade, I. A., & Martinho, A. (2016). Explaining rigid dieting in normal-weight women: the key role of body image inflexibility. *Eating and Weight Disorders*, *21*(1), 49–56. <https://doi.org/10.1007/s40519-015-0188-x>
- Francis, A. W., Dawson, D. L., & Golijani-Moghaddam, N. (2016). The development and validation of the Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT). *Journal of Contextual Behavioral Science*, *5*, 134-145. <https://doi.org/10.1016/j.jcbs.2016.05.003>

G

- Gardner, R. M., & Brown, D. L. (2014). Body size estimation in anorexia nervosa: A brief review of findings from 2003 through 2013. *Psychiatry Research*, *219*(3), 407–410. <https://doi.org/10.1016/j.psychres.2014.06.029>
- Gaspar, T., & Matos, M.G. (2008). *Qualidade de Vida em Crianças e Adolescentes – Versão Portuguesa dos Instrumentos KIDSCREEN 52*. Lisboa: Faculdade de Motricidade Humana.
- Gilbert, P. (2009). Introducing compassion focused therapy. *Advances in Psychiatric Treatment*, *15*, 199-208. <https://doi.org/10.1192/apt.bp.107.005264>
- Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology*, *53*(1), 6-41. <https://doi.org/10.1111/bjc.12043>
- Gilbert, P. (2016). *Human nature and suffering*. Routledge.

- Gilbert, P. (2020). Compassion: From its evolution to a psychotherapy. *Frontiers in Psychology*, *11*, 3123. <https://doi.org/10.3389/fpsyg.2020.586161>
- Gilbert, P., Catarino, F., Duarte, C., Matos, M., Kolts, R., Stubbs, J., . . . Basran, J. (2017). The development of compassionate engagement and action scales for self and others. *Journal of Compassionate Health Care*, *4*, 4. <https://doi.org/10.1186/s40639-017-0033-3>
- Gilbert, P., & Irons, C. (2005). Focused therapies and compassionate mind training for shame and self-attacking. In P. Gilbert (ed), *Compassion: Conceptualisations, Research and Use in Psychotherapy*, 263–325. Routledge.
- Gilbert, P., McEwan, K., Mitra, R., Franks, L., Richter, A., & Rockliff, H. (2008). Feeling safe and content: A specific affect regulation system? Relationship to depression, anxiety, stress, and self-criticism. *The Journal of Positive Psychology*, *3*(3), 182-191. <https://doi.org/10.1080/17439760801999461>
- Gilbert, P., McEwan, K., Mitra, R., Richter, A., Franks, L., Mills, A., Bellew, R., & Gale, C. (2009). An exploration of different types of positive affect in students and patients with a bipolar disorders. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, *6*(4), 135–143.
- Gillen, M. M. (2015). Associations between positive body image and indicators of men's and women's mental and physical health. *Body image*, *13*, 67–74. <https://doi.org/10.1016/j.bodyim.2015.01.002>
- Goss, K., & Allan, S. (2014). The development and application of compassion-focused therapy for eating disorders (CFT-E). *The British journal of clinical psychology*, *53*(1), 62–77. <https://doi.org/10.1111/bjc.12039>
- Greco, L. A., Lambert, W., & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: Development and evaluation of the Avoidance and Fusion Questionnaire for Youth. *Psychological Assessment*, *20*(2), 93-102. <https://doi.org/10.1037/1040-3590.20.2.93>

Grogan, S. (2016). *Body image: understanding body dissatisfaction in men, women and children*. (3rd ed). Taylor & Francis.

Gilbert, Paul, Kirsten McEwan, Ranjana Mitra, Anne Richter, Leigh Franks, Alison Mills, Rebecca Bellew, and Corinne Gale. 2009. "An Exploration of Different Types of Positive Affect in Students and Patients with a Bipolar Disorder." *Clinical Neuropsychiatry*.

H

Haines, J., Neumark-Sztainer, D., Wall, M., & Story, M. (2007). Personal, behavioral, and environmental risk and protective factors for adolescent overweight. *Obesity, 15*(11), 2748–2760. <https://doi.org/10.1038/oby.2007.327>

Halliburton, A. E., & Cooper, L. D. (2015). Applications and adaptations of Acceptance and Commitment Therapy (ACT) for adolescents. *Journal of Contextual Behavioral Science, 4*(1), 1-11. <https://doi.org/10.1016/j.jcbs.2015.01.002>

Halliwell, E., Jarman, H., McNamara, A., Risdon, H., & Jankowski, G. (2015). Dissemination of evidence-based body image interventions: A pilot study into the effectiveness of using undergraduate students as interventionists in secondary schools. *Body Image, 14*, 1–4. <https://doi.org/10.1016/j.bodyim.2015.02.002>

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: model, processes and outcomes. *Behaviour research and therapy, 44*(1), 1–25. <https://doi.org/10.1016/j.brat.2005.06.006>

Hayes, S. C., Pistorello, J., & Levin, M. E. (2012). Acceptance and commitment therapy as a unified model of behavior change. *The Counseling Psychologist, 40*(7), 976-1002. <https://doi.org/10.1177/0011000012460836>

Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and Commitment Therapy: An experiential approach to behavior change*. New York: Guilford Press.

Helfert, S., & Warschburger, P. (2011). A prospective study on the impact of peer and parental

pressure on body dissatisfaction in adolescent girls and boys. *Body image*, 8(2), 101–109.

<https://doi.org/10.1016/j.bodyim.2011.01.004>

Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body image*, 15, 1-7.

<https://doi.org/10.1016/j.bodyim.2015.04.007>

I

Iannantuono, A. C., & Tylka, T. L. (2012). Interpersonal and intrapersonal links to body appreciation in college women: An exploratory model. *Body image*, 9(2), 227-235.

<https://doi.org/10.1016/j.bodyim.2012.01.004>

J

Juarascio, A., Shaw, J., Forman, E., Timko, C. A., Herbert, J., Butryn, M., Bunnell, D., Matteucci, A., & Lowe, M. (2013). Acceptance and commitment therapy as a novel treatment for eating disorders: an initial test of efficacy and mediation. *Behavior modification*, 37(4), 459–489.

<https://doi.org/10.1177/0145445513478633>

K

Kabat-Zinn J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: theoretical considerations and preliminary results. *General hospital psychiatry*, 4(1), 33–47.

[https://doi.org/10.1016/0163-8343\(82\)90026-3](https://doi.org/10.1016/0163-8343(82)90026-3)

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144–156.

<https://doi.org/10.1093/clipsy.bpg016>

Kim, D.-S., & Kim, H.-S. (2009). Body-image dissatisfaction as a predictor of suicidal ideation among Korean boys and girls in different stages of adolescence: A two-year longitudinal

Study. *Journal of Adolescent Health*, 45(1), 47–54.
<https://doi.org/10.1016/j.jadohealth.2008.11.017>

L

- Lawler, M., & Nixon, E. (2011). Body dissatisfaction among adolescent boys and girls: the effects of body mass, peer appearance culture and internalization of appearance ideals. *Journal of youth and adolescence*, 40(1), 59–71. <https://doi.org/10.1007/s10964-009-9500-2>
- Leal, I. P., Antunes, R., Passos, T., Pais-Ribeiro, J., & Maroco, J. (2009). Estudo da escala de depressão, ansiedade e stresse para crianças (EADS-C). *Psicologia, saúde e doenças*, 10(2), 277-284.
- Lemoine, J. E., Konradsen, H., Lunde Jensen, A., Roland-Lévy, C., Ny, P., Khalaf, A., & Torres, S. (2018). Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body image*, 26, 1–9. <https://doi.org/10.1016/j.bodyim.2018.04.004>
- Levine, M. P., & Smolak, L. (2002). Body image development in adolescence. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 74-82). New York: Guilford Press.
- Lucena-Santos, P., Carvalho, S. A., Oliveira, M., & Pinto-Gouveia, J. (2017). Body-Image Acceptance and Action Questionnaire: Its deleterious influence on binge eating and psychometric validation. *International journal of clinical and health psychology : IJCHP*, 17(2), 151–160. <https://doi.org/10.1016/j.ijchp.2017.03.001>

M

- Machado, P. P., Martins, C., Vaz, A. R., Conceição, E., Bastos, A. P., & Gonçalves, S. (2014). Eating disorder examination questionnaire: psychometric properties and norms for the Portuguese population. *European eating disorders review : the journal of the Eating*

- Disorders Association*, 22(6), 448–453. <https://doi.org/10.1002/erv.2318>
- Mäkinen, M., Puukko-Viertomies, L. R., Lindberg, N., Siimes, M. A., & Aalberg, V. (2012). Body dissatisfaction and body mass in girls and boys transitioning from early to mid-adolescence: additional role of self-esteem and eating habits. *BMC psychiatry*, 12(1), 1–8. <https://doi.org/10.1186/1471-244X-12-35>
- Marta-Simões, J., Mendes, A. L., Trindade, I. A., Oliveira, S., & Ferreira, C. (2016). Validation of the Body Appreciation Scale-2 for Portuguese women [abstract proceeding]. *BMC Health Services Research*, 16, 82, 92. <https://doi.org/10.1186/s12913-016-1423-5>
- McCabe, M. P., & Ricciardelli, L. A. (2003). Body image and strategies to lose weight and increase muscle among boys and girls. *Health Psychology*, 22, 39–46.
- McCabe, M. P., & Ricciardelli, L. A. (2004). A longitudinal study of pubertal timing and extreme body change behaviors among adolescent boys and girls. *Adolescence*, 39(153), 145–166.
- McCracken, L. M., Chilcot, J., & Norton, S. (2015). Further development in the assessment of psychological flexibility: A shortened Committed Action Questionnaire (CAQ-8). *European Journal of Pain*, 19, 677–685. <https://doi.org/10.1002/ejp.589>
- Menzel, J. E., Krawczyk, R., Thompson, J. K. (2011). Attitudinal assessment of body image for adolescents and adults In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 3-11). New York: Guilford Press.
- Menzel, J., & Levine, M. (2011). Embodying experiences and the promotion of positive body image: The example of competitive athletics. In Calogero R. M., Tantleff-Dunn S. & Thompson J. K. (Eds.), *Self-objectification in women: Causes, consequences, and counteractions*. (pp. 163–186). American Psychological Association. <https://doi.org/10.1037/12304-008>
- Miguel, R. R., Sousa, R., Santos, L., Brazão, N., Rijo, D., Castilho, P., & Gilbert, P. (2022). *Dimensionality and measurement invariance of the Social Safeness and Pleasure*

Scale in adolescents from community and residential youth care. Manuscript submitted for publication. CINEICC, University of Coimbra.

- Mond, J. M., & Hay, P. J. (2007). Functional impairment associated with bulimic behaviors in a community sample of men and women. *The International journal of eating disorders*, 40(5), 391–398. <https://doi.org/10.1002/eat.20380>
- Mond, J., Mitchison, D., Latner, J., Hay, P., Owen, C., & Rodgers, B. (2013). Quality of life impairment associated with body dissatisfaction in a general population sample of women. *BMC public health*, 13, 920. <https://doi.org/10.1186/1471-2458-13-920>
- Monell, E., Högdahl, L., Mantilla, E. F., & Birgegård, A. (2015). Emotion dysregulation, self-image and eating disorder symptoms in University Women. *Journal of eating disorders*, 3, 44. <https://doi.org/10.1186/s40337-015-0083-x>
- Morgan, J. F., Reid, F., & Lacey, J. H. (2000). The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *The Western Journal of Medicine*, 172(3), 164–165. <https://doi-org/10.1136/ewjm.172.3.164>

N

- Neff, K. D. (2003). Development and validation of a scale to measure self-compassion. *Self and Identity*, 2, 223-250. <https://doi.org/10.1080/15298860390209035>
- Neff, K., & Tirsch, D. (2013). Self-compassion and ACT. In T. B. Kashdan & J. Ciarrochi (Eds.), *Mindfulness, acceptance, and positive psychology: The seven foundations of well-being* (pp. 78–106). New Harbinger Publications, Inc..
- Neumark-Sztainer, D. R., Wall, M. M., Haines, J. I., Story, M. T., Sherwood, N. E., & van den Berg, P. A. (2007). Shared risk and protective factors for overweight and disordered eating in adolescents. *American journal of preventive medicine*, 33(5), 359–369. <https://doi.org/10.1016/j.amepre.2007.07.031>

- Neumark-Sztainer, D., Croll, J., Story, M., Hannan, P. J., French, S. A., & Perry, C. (2002). Ethnic/racial differences in weight-related concerns and behaviors among adolescent girls and boys: findings from Project EAT. *Journal of psychosomatic research*, *53*(5), 963–974. [https://doi.org/10.1016/s0022-3999\(02\)00486-5](https://doi.org/10.1016/s0022-3999(02)00486-5)
- Neumark-Sztainer, D., Story, M., Hannan, P. J., Perry, C. L., & Irving, L. M. (2002). Weight-related concerns and behaviors among overweight and nonoverweight adolescents: implications for preventing weight-related disorders. *Archives of pediatrics & adolescent medicine*, *156*(2), 171-178. <https://doi.org/10.1001/archpedi.156.2.171>
- Neumark-Sztainer, D., Wall, M. M., Story, M., & Perry, C. L. (2003). Correlates of unhealthy weight-control behaviors among adolescents: implications for prevention programs. *Health psychology : official journal of the Division of Health Psychology, American Psychological Association*, *22*(1), 88–98. <https://doi.org/10.1037//0278-6133.22.1.88>

O

- Ohring, R., Graber, J. A., & Brooks-Gunn, J. (2002). Girls' recurrent and concurrent body dissatisfaction: correlates and consequences over 8 years. *The International journal of eating disorders*, *31*(4), 404–415. <https://doi.org/10.1002/eat.10049>
- Ordem dos Psicólogos Portugueses. (2016). *Código deontológico*. Retrieved from

P

- Paxton, S. J., Neumark-Sztainer, D., Hannan, P. J., & Eisenberg, M. E. (2006). Body dissatisfaction prospectively predicts depressive mood and low self-esteem in adolescent girls and boys. *Journal of clinical child and adolescent psychology : the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, *35*(4), 539–549. https://doi.org/10.1207/s15374424jccp3504_5

- Pearson, A. N., Heffner, M., & Follette, V., M. (2010). *Acceptance and commitment therapy for body image dissatisfaction: A practitioner's guide to using mindfulness, acceptance, and values-based behavior change strategies*. Oakland, CA: New Harbinger Publications, Inc.
- Piko, B. F., Obál, A., & Mellor, D. (2020). Body Appreciation in Light of Psychological, Health- and Weight-Related Variables Among Female Adolescents. *Europe's journal of psychology*, 16(4), 676–687. <https://doi.org/10.5964/ejop.v16i4.2183>
- Pinto-Gouveia, J., Ferreira, C., & Duarte, C. (2014). Thinness in the pursuit for social safeness: An integrative model of social rank mentality to explain eating psychopathology. *Clinical Psychology & Psychotherapy*, 21(2), 154-165. <https://doi.org/10.1002/cpp.1820>
- Pinto-Gouveia, J., Gregório, S., Dinis, A., & Xavier, A. (2012). Experiential avoidance in clinical and non-clinical samples: AAQ-II Portuguese Version. *International Journal of Psychology and Psychological Therapy*, 12(2), 139-156.
- Pinto-Gouveia, J., Matos, M., & Dinis, A. (2008). *Portuguese version of the Social Safeness and Pleasure Scale*. Unpublished manuscript, Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra, Portugal.
- Porges, S. W. (2007). The polyvagal perspective. *Biological Psychology*, 74, 116–143. <https://doi.org/10.1016/j.biopsycho.2006.06.009>

R

- Ravens-Sieberer, U., Auquier, P., Erhart, M., Gosch, A., Rajmil, L., Bruil, J., Power, M., Duer, W., Cloetta, B., Czemy, L., Mazur, J., Czimbalmos, A., Tountas, Y., Hagquist, C., Kilroe, J., & European KIDSCREEN Group (2007). The KIDSCREEN-27 quality of life measure for children and adolescents: psychometric results from a cross-cultural survey in 13 European countries. *Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation*, 16(8), 1347–1356. <https://doi.org/10.1007/s11136-007-9240-2>

- Ricciardelli, L. A., & McCabe, M. P. (2001). Dietary restraint and negative affect as mediators of body dissatisfaction and bulimic behavior in adolescent girls and boys. *Behaviour research and therapy, 39*(11), 1317-1328. [https://doi.org/10.1016/S0005-7967\(00\)00097-8](https://doi.org/10.1016/S0005-7967(00)00097-8)
- Rodgers, R. F., Donovan, E., Cousineau, T., Yates, K., McGowan, K., Cook, E., Lowy, A. S., & Franko, D. L. (2018). BodiMojo: Efficacy of a Mobile-Based Intervention in Improving Body Image and Self-Compassion among Adolescents. *Journal of youth and adolescence, 47*(7), 1363–1372. <https://doi.org/10.1007/s10964-017-0804-3>
- Rodin, J., Silberstein, L., & Striegel-Moore, R. (1984). Women and weight: a normative discontent. *Nebraska Symposium on Motivation. Nebraska Symposium on Motivation, 32*, 267–307.
- Rohde, P., Stice, E., & Marti, C. N. (2015). Development and predictive effects of eating disorder risk factors during adolescence: Implications for prevention efforts. *The International journal of eating disorders, 48*(2), 187–198. <https://doi.org/10.1002/eat.22270>
- Rosenblum, G. D., & Lewis, M. (1999). The relations among body image, physical attractiveness, and body mass in adolescence. *Child development, 70*(1), 50–64. <https://doi.org/10.1111/1467-8624.00005>

S

- Sandoz, E. K., Wilson, K. G., Merwin, R. M., & Kellum, K. K. (2013). Assessment of body image flexibility: the body image-acceptance and action questionnaire. *Journal of Contextual Behavioral Science, 2*(1-2), 39-48. <https://doi.org/10.1016/j.jcbs.2013.03.002>
- Schaefer, M. K., & Salafia, E. H. B. (2014). The connection of teasing by parents, siblings, and peers with girls' body dissatisfaction and boys' drive for muscularity: the role of social comparison as a mediator. *Eating behaviors, 15*(4), 599–608. <https://doi.org/10.1016/j.eatbeh.2014.08.018>
- Schilder, P. (1935). *The image and appearance of the human body*. Kegan Paul.

- Segal, Z. V., Williams, M., & Teasdale, J. (2018). *Mindfulness-based cognitive therapy for depression*. Guilford Publications.
- Seligman, M. E. P. (2002). Positive psychology, positive prevention, and positive therapy. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 3–9). Oxford University Press.
- Smolak, L., & Cash, T. F. (2011). Future challenges for body image science, practice, and prevention. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 471–478). The Guilford Press.
- Stice E. (2016). Interactive and Mediational Etiologic Models of Eating Disorder Onset: Evidence from Prospective Studies. *Annual review of clinical psychology, 12*, 359–381. <https://doi.org/10.1146/annurev-clinpsy-021815-093317>
- Stice, E., & Shaw, H. (2004). Eating disorder prevention programs: A meta-analytic review. *Psychological Bulletin, 130*(2), 206–227. <https://doi.org/10.1037/0033-2909.130.2.206>
- Stice, E., & Whitenton, K. (2002). Risk factors for body dissatisfaction in adolescent girls: A longitudinal investigation. *Developmental Psychology, 38*, 669–678.
- Stice, E., Hayward, C., Cameron, R. P., Killen, J. D., & Taylor, C. B. (2000). Body-image and eating disturbances predict onset of depression among female adolescents: A longitudinal study. *Journal of Abnormal Psychology, 109*(3), 438–444. <https://doi.org/10.1037/0021-843X.109.3.438>
- Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomatology: an examination of mediating mechanisms. *Journal of abnormal psychology, 103*(4), 836–840. <https://doi.org/10.1037//0021-843x.103.4.836>
- Strahan, E. J., Wilson, A. E., Cressman, K. E., & Buote, V. M. (2006). Comparing to perfection: How cultural norms for appearance affect social comparisons and self-image. *Body image, 3*(3), 211–227. <https://doi.org/10.1016/j.bodyim.2006.07.004>

- Striegel-Moore, R. H., & Cachelin, F. M. (1999). Body image concerns and disordered eating in adolescent girls: Risk and protective factors. In N. G. Johnson, M. C. Roberts, & J. Worell (Eds.), *Beyond appearance: A new look at adolescent girls* (pp. 85–108). American Psychological Association. <https://doi.org/10.1037/10325-003>
- Swami, V., Furnham, A., & Joshi, K. (2008). The influence of skin tone, hair length, and hair colour on ratings of women's physical attractiveness, health and fertility. *Scandinavian journal of psychology, 49*(5), 429–437. <https://doi.org/10.1111/j.1467-9450.2008.00651.x>
- Swami, V., Hwang, C. S., & Jung, J. (2012). Factor structure and correlates of the acceptance of cosmetic surgery scale among South Korean university students. *Aesthetic surgery journal, 32*(2), 220–229. <https://doi.org/10.1177/1090820X11431577>

T

- The Dalai Lama (2001). *An Open Heart: Practicing Compassion in Everyday Life*. Little Brown & Company: Boston, MA.
- Thompson, J. K. (Ed.) (2004). *Handbook of eating disorders and obesity*. New York: Wiley.
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Examining beauty: Theory, assessment, and treatment of body image disturbance*. American Psychological Association.
- Tiggemann M. (2015). Considerations of positive body image across various social identities and special populations. *Body image, 14*, 168–176. <https://doi.org/10.1016/j.bodyim.2015.03.002>
- Tiggemann, M., & McCourt, A. (2013). Body appreciation in adult women: Relationships with age and body satisfaction. *Body Image, 10*(4), 624–627. <https://doi.org/10.1016/j.bodyim.2013.07.003>
- Timko, C. A., Juarascio, A. S., Martin, L. M., Faherty, A., & Kalodner, C. (2014). Body image avoidance: An under-explored yet important factor in the relationship between body

- image dissatisfaction and disordered eating. *Journal of Contextual Behavioral Science*, 3(3), 203-211. <https://doi.org/10.1016/j.jcbs.2014.01.002>
- Tirch, D., Schoendorff, B., & Silberstein, L. R. (2014). *The ACT practitioner's guide to the science of compassion: Tools for fostering psychological flexibility*. New Harbinger Publications.
- Tylka, T. L. (2018). Overview of the field of positive body image. In E. A. Daniels, M. M. Gillen, & C. H. Markey (Eds.), *Body positive: Understanding and improving body image in science and practice* (pp. 6–33). Cambridge University Press. <https://doi.org/10.1017/9781108297653.002>
- Tylka, T. (2019). Body appreciation. In Tylka T. & Piran N. (Eds.), *Handbook of positive body image and embodiment*. (pp. 22–32). Oxford University Press. <https://doi.org/10.1093/med-psych/9780190841874.003.0003>
- Tylka, T. L. (2011). Positive psychology perspectives on body image. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (2nd ed., pp. 56–65). New York: Guilford Press.
- Tylka, T. L. (2013). Evidence for the Body Appreciation Scale's measurement equivalence/invariance between US college women and men. *Body Image*, 10(3), 415-418. <https://doi.org/10.1016/j.bodyim.2013.02.006>
- Tylka, T. L., & Kroon Van Diest, A. M. (2013). The Intuitive Eating Scale–2: Item refinement and psychometric evaluation with college women and men. *Journal of Counseling Psychology*, 60(1), 137–153. <https://doi.org/10.1037/a0030893>
- Tylka, T. L., & Wood-Barcalow, N. L. (2015a). What is and what is not positive body image? Conceptual foundations and construct definition. *Body image*, 14, 118-129. <https://doi.org/10.1016/j.bodyim.2015.04.001>
- Tylka, T. L., & Wood-Barcalow, N. L. (2015b). The body appreciation scale-2: Item refinement and psychometric evaluation. *Body Image*, 12, 53–67. <https://doi.org/10.1016/j.bodyim.2014.09.006>

Trompetter, H. R., Ten Klooster, P. M., Schreurs, K. M. G., Fledderus, M., Westerhof, G. J., & Bohlmeijer, E. T. (2013). Measuring values and committed action with the engaged living scale (ELS): Psychometric evaluation in a nonclinical sample and a chronic pain sample. *Psychological Assessment, 25*, 1235-1246. <https://doi.org/10.1037/a0033813>

U

Urke, H. B., Holsen, I., & Larsen, T. (2021). Positive Youth Development and Mental Well-Being in Late Adolescence: The Role of Body Appreciation. Findings From a Prospective Study in Norway. *Frontiers in psychology, 3505*. <https://doi.org/10.3389/fpsyg.2021.696198>

V

Voelker, D. K., Reel, J. J., & Greenleaf, C. (2015). Weight status and body image perceptions in adolescents: current perspectives. *Adolescent health, medicine and therapeutics, 6*, 149–158. <https://doi.org/10.2147/AHMT.S68344>

Vowles, K. E., Witkiewitz, K., Sowden, G., & Ashworth, J. (2014). Acceptance and commitment therapy for chronic pain: evidence of mediation and clinically significant change following an abbreviated interdisciplinary program of rehabilitation. *The journal of pain, 15*(1), 101–113. <https://doi.org/10.1016/j.jpain.2013.10.002>

W

Wang, S. B., Haynos, A. F., Wall, M. M., Chen, C., Eisenberg, M. E., & Neumark-Sztainer, D. (2019). Fifteen-Year Prevalence, Trajectories, and Predictors of Body Dissatisfaction From Adolescence to Middle Adulthood. *Clinical psychological science : a journal of the Association for Psychological Science, 7*(6), 1403–1415. <https://doi.org/10.1177/2167702619859331>

- Wasylikiw, L., MacKinnon, A. L., & MacLellan, A. M. (2012). Exploring the link between self-compassion and body image in university women. *Body image, 9*(2), 236–245. <https://doi.org/10.1016/j.bodyim.2012.01.007>
- Webb, J. B. (2015). Body image flexibility contributes to explaining the link between body dissatisfaction and body appreciation in White college-bound females. *Journal of Contextual Behavioral Science, 4*, 176–183. <https://doi.org/10.1016/j.jcbs.2015.06.001>.
- Webb, J. B., Butler-Ajibade, P., & Robinson, S. A. (2014). Considering an affect regulation framework for examining the association between body dissatisfaction and positive body image in Black older adolescent females: Does body mass index matter?. *Body image, 11*(4), 426-437. <https://doi.org/10.1016/j.bodyim.2014.07.002>
- Wertheim, E. H., Koerner, J., & Paxton, S. J. (2001). Longitudinal predictors of restrictive eating and bulimic tendencies in three different age groups of adolescent girls. *Journal of Youth and Adolescence, 30*(1), 69–81. <https://doi.org/10.1023/A:1005224921891>
- Wertheim, E. H., Paxton, S. J., & Blaney, S. (2004). Risk Factors for the Development of Body Image Disturbances. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 463–494). John Wiley & Sons, Inc..
- Whoqol Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychological medicine, 28*(3), 551-558.
- Williams, E. F., Cash, T. F., & Santos, M. T. (2004). Positive and negative body image: Precursors, correlates, and consequences. Paper presented at the 38th annual Association for the Advancement of Behavior Therapy.
- WMA (2013). World Medical Association Declaration of Helsinki ethical principles for medical research involving human subjects. *JAMA: Journal of the American Medical Association, 310*(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>

Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). "But I like my body": Positive body image characteristics and a holistic model for young-adult women. *Body image*, 7(2), 106-116. <https://doi.org/10.1016/j.bodyim.2010.01.001>

Y

Yadavaia, J. E., Hayes, S. C., & Vilaradaga, R. (2014). Using Acceptance and Commitment Therapy to Increase Self-Compassion: A Randomized Controlled Trial. *Journal of contextual behavioral science*, 3(4), 248–257. <https://doi.org/10.1016/j.jcbs.2014.09.002>

APPENDIX A

THE #KindGirlsInACTion PROGRAMME

1. DEVELOPMENT AND IMPLEMENTATION OF THE PROGRAMME

The #KindGirlsInACTion Programme

1. Development and implementation of the programme

1.1. #TheKindGirlsInACTion Programme – Theoretical framework

The development of the #KindGirlsInACTion programme aimed at covering the association between psychological processes and emotion regulation mechanisms, and body appreciation (Cook-Cottone, 2015; Homan & Tylka, 2015; Menzel & Levine, 2011; Pearson et al., 2010; Tylka, 2019; Tylka & Wood-Barcalow, 2015a; Webb et al., 2014).

Considering this specific aim, the #KindGirlsInACTion, as the name implies, **integrates, and combines concepts and techniques from three cognitive-behavioural therapies: Acceptance and Commitment Therapy (ACT), Compassion Focused Therapy (CFT) and Mindfulness-based Cognitive Therapy**. This specific approach, that is combining different processes from ACT while promoting compassionate abilities has been employed and endorsed in several studies (Davey et al., 2020; Neff & Tirch, 2013; Tirch et al., 2014). Specifically, self-compassion is pointed as a potential mediator of change in psychopathological symptoms in ACT interventions (Vowles et al., 2014). Neff and Tirch (2013) consider that the theoretical consistency between ACT and CTF are indicators that compassion can serve to amplify the technical basis of ACT. In the opposite but complementary perspective, Yadayaia and colleagues (2014) consider that psychological flexibility may be beneficial for the development of self-compassion, since the process of acceptance may be viewed as an attitude of deep self-kindness. These authors argue that getting in contact with one's pain and suffering is a necessary process for self-directing understanding (a coping skill that underlies self-compassion). Additionally, Davey and colleagues (2014) consider that although psychological flexibility (key-ACT construct) and self-compassion are considered closely related models, each one of them can provide unique information in psychotherapeutic approaches (Davey et al., 2014). Effectively, in different areas of psychopathology and health (i.e.,

breast cancer patients, overweight, obesity, stigma), several psychological interventions that merged the concepts of psychological flexibility, compassion and mindfulness were successfully applied (Palmeira et al., 2017; Pinto-Gouveia et al., 2017; Skinta et al., 2015; Trindade et al., 2020). Regarding the specific developmental stage of adolescence, several studies provided empirical evidence of the potential usefulness of combining ACT with mindfulness in children and adolescents (Burke, 2010; Hayes & Greco, 2008).

1.2. Innovative content and structure of the #KindGirlsInAction

Bearing in mind that the target population of the programme is female adolescents, who are, in the Portuguese context, of school age, the programme was specifically designed to constitute a **school-based intervention**. Schools are considered an ideal setting for capturing the adolescent population (Fazel et al., 2014), and school-based interventions are indeed considered to have positive effects on the mental health of recipients (e.g., O'Reilly et al., 2018).

Another particular aspect of this programme is the fact that, despite aiming to promote a positive body image, **the programme's contents do not focus directly on body image issues**. This approach is defended by authors such as Stice and Shaw (2004), who in a meta-review analysis concluded that cognitive interventions that alter maladaptive attitudes produced the most promising effects than those mainly focused on psychoeducational content.

The #KindGirlsInAction was proposed as an **interactive** intervention, that is a programme whose sessions were originally planned to encourage participants' activity and to provide opportunities to practice skills (Larimer & Crouse, 2002). An interactive dynamic is believed to enable the acquisition of concepts and skills and to promote changes in participants' attitudes and behaviours (Stice & Shaw, 2004). Furthermore, when intervening with adolescent populations, it is believed that they should go beyond interactivity, investing in language adaptation, and in a presentation that is as engaging and fun as possible (Levine & Smolak, 2002). In order to make the programme effectively interactive, its practical conceptualization was based

on factors such as adapting its language and focusing on moments of sharing experiences, and on originally developed experiential exercises, to the detriment of a focus on psychoeducational moments.

1.3. Aims of the #KindGirlsInACTion intervention

The #KindGirlsInACTion Programme aims to contribute to overall quality of life and well-being of female adolescents, by promoting affiliative relationships and positive body image, through the cultivation of self-compassion, compassion and psychological flexibility, and the practice of mindfulness meditations.

1.4. Target population of the intervention

The target population of the #KindGirlsInACTion intervention is female adolescents from the general population, aged between 12 and 18 years old.

1.5. Development of the intervention

The process of development of the #KindGirlsInACTion programme took about a year and a half, during which the intervention manual, exercises, practices and materials were created and tested. Taking into account the theoretical framework of the #KindGirlsInACTion, researchers involved in the process of development of the programme were experts in Compassion Focused Therapy (CFT), Acceptance and Commitment Therapy (ACT) and mindfulness-based interventions. Also, considering the target-age of potential participants, researchers had previous experience in psychotherapy with adolescents and in group-psychotherapy.

The process of developing the programme started with the discussion of theoretical and practical questions, namely the combination of CFT, ACT and mindfulness, and the conception of original and age-appropriate exercises, as well as group-dynamics. Then, two manuals were draft,

one for facilitators and the other for participants. The **facilitator's manual** is intended to act as a guide for the entire intervention for facilitators, who should have training, i.e., qualifications and experience in the field of clinical psychology and, ideally, in cognitive-behavioral therapies. This manual contains relevant information about the theoretical basis of the programme, the general and specific objectives, the ideal configuration of the group and space, and detailed information about each session. In each session, information is given to the facilitator about the structure and content of the session, the materials to be prepared, the materials to be given to the participants, and example sentences to guide the facilitator's speech throughout the entire session. Additionally, the facilitator's manual comprises all programme materials, namely worksheets to be carried out in the session itself or at home, and audio files to be given to participants for practice between sessions. The **manual for participants** was prepared and designed to make it as attractive as possible, considering the target age of the participants. For example, each session was assigned a specific color, the exercises had personalized titles to make them more appealing, using, for example, titles of famous songs. This manual includes specific spaces for participants to write down information and perform exercises and tasks. The manual also included audio files for meditation practices, and session summaries and tips on psychological functioning to consult between sessions. In addition to the manual, some programme materials were given to the participants, namely the "Jar of life", and a personal letter that was delivered after the programme, by mail, to each participant.

After the completion of the intervention manuals, the programme was tested in two **pilot groups** of university students. This pilot study allowed the research team to make adjustments regarding the structure, contents, duration of each exercise, and to assess the adequacy of the prepared materials. The conduction of the programme in the two pilot groups was carried out by the same facilitators who conducted the experimental groups of this research project. This work had the technical supervision of a CFT, ACT and mindfulness expert. The qualitative feedback

provided by the pilot groups, i.e., from the supervisor and the participants, helped reaching the final version of the manuals of the Programme.

1.6. Structure and contents of the intervention programme

Regarding the structure of the programme, it contains nine sessions, with a weekly frequency, each lasting forty-five minutes. In terms of programme extension, the final structure of nine sessions allows for the inclusion of an initial presentation session, two introductory sessions, sessions specifically aimed at promoting CFT emotion regulation mechanisms and ACT psychological processes, and also introduce and develop the practice of mindfulness in a gradual and structured way. Regarding the duration of each one of the sessions, considering that the #KindGirlsInACTion is a school-based programme, this is the length of a lesson in the Portuguese education system. Thus, the forty-five minutes length was the solution that best reconciled the achievement of the programme's objectives and the non-disruption of the regular school functioning.

Each one of the sessions of the programme is designed to start with a mindfulness meditation, followed by a moment of sharing of previous and current experience, then a psychoeducational thematic moment. Each session comprises several experiential exercises and ends with instructions for the meditations to practice and tasks to complete during the following week, and a final meditation.

Overall, the first two sessions of the #KindGirlsInACTion present the programme (facilitators and participants), provide psychoeducation about adolescence and mental health, and aim at establishing group union. Sessions from III to V cover the themes of evolutionary psychology, self-compassion, and compassion for others. The final sessions (from VI to IX) focus on the ACT Hexaflex, i.e., the six core processes of psychological flexibility.

Next, each of the programme sessions is presented in detail.



Session I – Introduction to the #KindGirlsInAction” and Programme rules

Objectives: Establishment of the Programme rules and group union.

Contents:

- Information about the structure and general contents of the Programme Therapists and participants’ presentation.
- Introduction to mindfulness.

Structure:

2. Presentation of facilitators and of the #KindGirlsInAction programme;
3. Presentation of the group members
 - “Link web” group dynamic
4. Presentation of the objectives of the programme
5. information about the programme's operating rules
6. Introduction to mindfulness
 - “Mindful eating of a gummy” exercise
 - “Notice five things” exercise
7. Between sessions practice exercises
 - “Notice five things” exercise

- “Mindfulness of sound” practice
8. Final mindfulness practice
- “Mindfulness of sound” practice

Materials:

- Mindfulness bell
- Ball made with cotton yarn in different colors (“Link web” group dynamic)
- Gummies (“Mindful eating of a gummy” exercise)



Session II – Group union and common humanity “Much more is what unites us”

Objectives: Promotion of group union.

Contents:

- The importance of group union.
- Psychoeducation about being a female adolescent.
- Introduction to the concept of common humanity.

Structure:

1. Initial mindfulness practice
 - “Mindfulness of breath and sound” practice
2. Sharing of previous and current experience
3. Theme of the session: “Much more is what unites us”
 - “All that we share” exercise
 - “Hand gestures” exercise
4. Between sessions practice exercises
 - “Informal mindfulness” exercise
 - “Three-minute breathing space” practice
5. Final mindfulness practice

- “Three-minute breathing space” practice

Materials:

- Mindfulness bell
- Colored tape to delimit areas on the floor (“All that we share” exercise)



Session III - Emotion regulation systems “How does the mind work?”

Objectives:

- Understanding the functioning of the Human mind.
- Presenting the adaptive side of Human emotions.
- Recognizing the soothing/affiliation emotion regulation system as the adaptive alternative to regulate the threat/protection system.

Contents:

- The Human mind functioning in an evolutionary perspective.
- The threat/protection, drive/excitement, and soothing/affiliation emotion regulation systems.

Structure:

1. Initial mindfulness practice
 - “Present moment meditation” practice
2. Sharing of previous and current experience
3. Theme of the session: “How does the mind work?”
 - “Zebra metaphor”
 - “Goose and bottle metaphor”

4. Understanding emotions: Human emotion regulation systems
 - “Activate your system” exercise
5. Between sessions practice exercises
 - “The ten-finger gratitude exercise” exercise
 - “Present moment meditation” practice
6. Final practice
 - “The chocolate exercise “

Materials:

- Mindfulness bell
- Flags alluding to the three affect regulation systems (“Activate your system” exercise)
- Chocolate squares (“The chocolate exercise”)



Session IV – Introduction to the concept of compassion “Remind yourself to be kind”

Objectives:

- Understanding of the role of compassion in Human emotion regulation.

Contents:

- Definition of the concept of compassion.
- Interplay between compassion and emotion regulation systems.

Structure:

1. Initial mindfulness practice
 - “Observing thoughts meditation” practice
2. Sharing of previous and current experience
3. Theme of the session: Introduction to the concept of compassion
 - “Compassion is... Compassion is not...” group dynamic
 - “How would you treat a friend” exercise
 - “The two teachers’ metaphor” “Activate your system” exercise
4. Between sessions practice exercises
 - “Letter from a friend” exercise
 - “Loving-kindness meditation”

5. Final practice

- “Loving-kindness meditation”

Materials:

- Mindfulness bell
- Paper and pen (“How would you treat a friend” exercise)



Session V – Self-compassion and compassion for others

“Remind yourself to be kind to yourself and others”

Objectives:

- Recognizing the difficulties associated with being self-compassionate.
- Practicing self-compassion and compassion for others.

Contents:

- Definition of the concepts of self-compassion and compassion for others.
- Psychoeducation about the benefits of practicing compassion.

Structure:

1. Initial mindfulness practice
 - “Compassionate friend mediation” practice
2. Sharing of previous and current experience
3. Theme of the session: Self-compassion and compassion for others
 - “We are all compassionate” exercise
 - “Compassionate listening exercise”
4. Between sessions practice exercises
 - “Self-compassion journal” exercise

- “Compassionate friend mediation”

5. Final exercise

- “7-11 breathing exercise”

Materials:

- Mindfulness bell



Session VI – Life values “Life is about the journey, not the destination”

Objectives:

- Distinguishing objectives and life values.
- Learning to identify and clarify life values.

Contents:

- Introduction of the concept of life values

Structure:

1. Initial mindfulness practice
 - “Observing thoughts meditation” practice
2. Sharing of previous and current experience
3. Theme of the session: Life values and committed action
 - “20th birthday party” exercise
 - “The jar of life” exercise
4. Between sessions practice exercises
 - “Life is about the journey, not the destination” exercise
 - “Observing thoughts meditation” practice
5. Final exercise

- “Make your own way” exercise

Materials:

- Mindfulness bell
- Two glass jars, small balls, small stones, and sand (“The jar of life” exercise)
- Six paper planes with little pieces of paper attached with the valued living areas identified (“Life is about the journey, not the destination” exercise)



Session VII – Control vs acceptance “Control is the trap”

Objectives:

- Understanding the consequences of experiential avoidance.
- Promotion of acceptance.

Contents:

- Introduction of the concepts of avoidance and acceptance.

Structure:

1. Initial mindfulness practice
 - “Brief loving-kindness + Present moment meditation” practice
2. Sharing of previous and current experience
3. Theme of the session: Control vs acceptance
 - “Giraffe metaphor”
 - “The armed man metaphor”
 - “The ice cube exercise”
4. Between sessions practice exercises
 - “Outside the box exercise”
 - “Acceptance mindfulness” practice

5. Final exercise

- “Life is about the journey, not the destination” exercise (cont.)

Materials:

- Mindfulness bell
- One ice cube and a disposable cup per participant (“The ice cube exercise”)
- Six paper planes with little pieces of paper attached with the valued living areas identified (“Life is about the journey, not the destination” exercise)



Session VIII - Fusion vs defusion "Our chatty mind"

Objectives:

- Understanding the consequences of cognitive fusion.
- Promotion of defusion.

Contents:

- Introduction of the concepts of cognitive fusion and defusion

Structure:

1. Initial mindfulness practice
 - "Body scan" practice
1. Sharing of previous and current experience
2. Theme of the session: Fusion vs defusion
 - "Passengers on the bus" exercise
 - "Desliteralization of thoughts" exercise
 - "Labelling the experience" exercise
 - "Our distracting mind" exercise
3. Between sessions practice exercises
 - "Playing with thoughts" exercise"

- “Body scan” meditation
- “Loving-kindness” meditation

4. Final exercise

- “Life is about the journey, not the destination” exercise (cont.)

Materials:

- Mindfulness bell



Session IX – Committed action “Remind yourself to be kind and live a meaningful life”

Objectives:

- Identification of obstacles to the practice of mindfulness, to compassion and committed action
- Building strategies to overcome identified obstacles
- Creating a personal compromise to live a compassionate and engaged life

Contents:

- Clarification about the concept of committed action with freely chosen life values
- Integration of the concepts of compassion and psychological flexibility

Structure:

1. Initial mindfulness practice
 - “Mindful walking meditation” practice
2. Sharing of previous and current experience
3. Theme of the session: Committed life
 - “Whirl of thoughts exercise”
 - “Compassionate friend meditation”
 - “Letter to myself”

4. Final practice

- “Weather forecast mediation”

Materials:

- Mindfulness bell

1.7. Recruitment procedures

Approval from several independent ethics committees was asked prior to any procedure. Also, the experimental study was registered at ClinicalTrials.gov (Identifier TRIALS.org number NCT05149066).

Since the #KindGirlsInAction is a school-based intervention for adolescent girls aged between 12 and 18, the recruitment process started with inviting several middle and secondary schools in the centre of Portugal to participate in the study. Selection of schools was based on two criteria: (i) having an equal distribution between rural and urban schools, and (ii) dislocation costs of the research team to deliver the intervention. Schools were offered the opportunity either to participate in the control group (i.e., completing self-report measures in three different moments), or in the intervention group (attending a 9-week intervention programme and completing self-report measures in three different moments). Bearing in mind that the intervention would take place during school time, this choice was fundamentally based on the logistical and schedule availability of the schools to receive the intervention.

In the case of schools that chose to host the intervention programme, contacts were made with the directors of the selected classes (taking into account the age criterion) in order to schedule sessions to present the programme to the school community. In these sessions, the objectives and procedures of programme were presented, and informed consent forms were given to potential participants. Then, the students who showed an intention to participate in the programme delivered the consent document signed by their legal guardians, providing their electronic contact details to the research team. This contact would then serve to disseminate the online assessment protocols, which were completed by these participants at three different times: M0 (before the intervention), M1 (immediately after the intervention), and M3 (a three-month follow-up assessment). Although these assessment protocols were similar and comprised the same self-response measures, the evaluation protocol to be completed before the intervention (M0 assessment) contained two screening measures that assessed psychological and

psychiatric problems that could invalidate the participation in the programme (DASS-C-21; Leal et al., 2009; and a translated and adapted version of the SCOFF, Morgan et al., 2000). After receiving the informed consent forms and analyzing results of the screening assessment, groups of participants were formed based on belonging to the same class, thus with homogeneous ages within the same group.

Regarding the schools that made the option to participate in the control group, the research team contacted the directors of classes selected based on the criterion of age to schedule sessions to present the research project. In this session, potential participants were given information concerning the importance of the control group for the research project in question, and also about the procedures of the study. It was clarified that these girls should complete a set of self-report measures online with moments that mimicked the intervention group: the first assessment (M0), the second assessment, nine weeks after M0 (M1), and the final one, three months after M1 (M2). Also, if they completed all three of the assessment protocols they would be elected for a remuneration for their participation (shopping vouchers to purchase goods and experiences). Informed consent forms were delivered to potential participants who were also asked for their email information to send the assessment protocols after receiving consent forms signed by legal guardians. Furthermore, participants in the control group were informed that they would have the opportunity of attending the programme, if they so wished, after the end of the study.

1.8. Intervention delivery

As previously mentioned, the intervention Programme was conducted in the school place as an extra-curricular activity. Each one of the sessions lasted forty-five minutes and was delivered by two trained facilitators. Due to the need to preserve participants' confidentiality, principal and teachers were not allowed to attend the sessions.

Participants in the intervention group attended the nine sessions of presentational exercises, practices and discussions, and were invited to complete exercises and practice mindfulness meditations between sessions. Each one of the participants was given a manual containing summaries of sessions and materials for the practices between sessions. Facilitators were always available to clarify any doubts, in presence or by email.

To assess quantitative results and to evaluate the efficacy of the intervention, participants in the intervention group received an email to complete a battery of self-report questionnaires to explore affiliative relationships, compassion and psychological flexibility indicators, well-being, and body image and eating-related measures. These were administered online at pre-intervention (M0), at post-intervention (M1) and 3 months after the intervention (M2). Also, at the end of the Programme participants were invited to complete a qualitative assessment about the structure and contents of the Programme as well as of their acceptability and personal experience (Mendes et al., 2022).

References

- Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies, 19*(2), 133-144. <https://doi.org/10.1007/s10826-009-9282-x>
- Cook-Cottone, C. P. (2015). Incorporating positive body image into the treatment of eating disorders: A model for attunement and mindful self-care. *Body image, 14*, 158-167. <https://doi.org/10.1016/j.bodyim.2015.03.004>
- Davey, A., Chilcot, J., Driscoll, E., & McCracken, L. M. (2020). Psychological flexibility, self-compassion and daily functioning in chronic pain. *Journal of Contextual Behavioral Science, 17*, 79-85.

- Fazel, M., Hoagwood, K., Stephan, S., & Ford, T. (2014). Mental health interventions in schools 1: Mental health interventions in schools in high-income countries. *The lancet. Psychiatry*, 1(5), 377–387. [https://doi.org/10.1016/S2215-0366\(14\)70312-8](https://doi.org/10.1016/S2215-0366(14)70312-8)
- Hayes, S. C., & Greco, L. A. (2008). Acceptance and mindfulness for youth: It's time. In L. A. Greco & S. C. Hayes (Eds.), *Acceptance & mindfulness treatments for children & adolescents: A practitioner guide* (pp. 3-14). Oakland, CA: New Harbinger Publications, Inc
- Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body image*, 15, 1-7. <https://doi.org/10.1016/j.bodyim.2015.04.007>
- Larimer, M. E., & Cronce, J. M. (2002). Identification, prevention and treatment: a review of individual-focused strategies to reduce problematic alcohol consumption by college students. *Journal of studies on alcohol. Supplement*, (14), 148–163. <https://doi.org/10.15288/jsas.2002.s14.148>
- Mendes, A. L., Marta-Simões, J., & Ferreira, C. (2022). *#KindGirlsInAction: A school-based group intervention to promote adolescent girls' compassion and psychological flexibility* [Manuscript submitted for publication]. CINEICC, University of Coimbra.
- Menzel, J., & Levine, M. (2011). Embodying experiences and the promotion of positive body image: The example of competitive athletics. In Calogero R. M., Tantleff-Dunn S. & Thompson J. K. (Eds.), *Self-objectification in women: Causes, consequences, and counteractions*. (pp. 163–186). American Psychological Association. <https://doi.org/10.1037/12304-008>
- O'Reilly, M., Svirydzenka, N., Adams, S., & Dogra, N. (2018). Review of mental health promotion interventions in schools. *Social psychiatry and psychiatric epidemiology*, 53(7), 647–662. <https://doi.org/10.1007/s00127-018-1530-1>
- Palmeira, L., Pinto-Gouveia, J., & Cunha, M. (2017). Exploring the efficacy of an acceptance, mindfulness & compassionate-based group intervention for women struggling with their

- weight (Kg-Free): a randomized controlled trial. *Appetite*, *112*, 107–116. doi: 10.1016/j.appet.2017.01.027
- Pearson, A. N., Heffner, M., & Follette, V., M. (2010). *Acceptance and commitment therapy for body image dissatisfaction: A practitioner's guide to using mindfulness, acceptance, and values-based behavior change strategies*. Oakland, CA: New Harbinger Publications, Inc.
- Pinto-Gouveia, J., Carvalho, S. A., Palmeira, L., Castilho, P., Duarte, C., et al. (2017). BEfree: a new psychological Programme for binge eating that integrates psychoeducation, mindfulness, and compassion. *Clinical Psychology & Psychotherapy*, *24*, 1090–1098. <https://doi.org/10.1002/cpp.2072>
- Skinta, M. D., Lezama, M., Wells, G., & Dilley, J. W. (2015). Acceptance and compassion-based group therapy to reduce HIV Stigma. *Cognitive Behavioral Therapy*, *22*, 481–490. doi: 10.1016/j.cbpra.2014.05.006
- Stice, E., & Shaw, H. (2004). Eating disorder prevention programs: A meta-analytic review. *Psychological Bulletin*, *130*(2), 206–227. <https://doi.org/10.1037/0033-2909.130.2.206>
- Trindade, I. A., Ferreira, C., & Pinto-Gouveia, J. (2020). Acceptability and preliminary test of efficacy of the Mind Programme in women with breast cancer: an acceptance, mindfulness, and compassion-based intervention. *Journal of Contextual Behavioral Science*, *15*, 162–171. <https://doi.org/10.1016/j.jcbs.2019.12.005>
- Tylka, T. (2019). Body appreciation. In Tylka T. & Piran N. (Eds.), *Handbook of positive body image and embodiment*. (pp. 22–32). Oxford University Press. <https://doi.org/10.1093/med-psych/9780190841874.003.0003>
- Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body image*, *14*, 118–129. <https://doi.org/10.1016/j.bodyim.2015.04.001>
- Webb, J. B., Butler-Ajibade, P., & Robinson, S. A. (2014). Considering an affect regulation framework for examining the association between body dissatisfaction and positive body

image in Black older adolescent females: Does body mass index matter?. *Body image*, 11(4), 426-437. <https://doi.org/10.1016/j.bodyim.2014.07.002>