



# The roles of self-compassion and psychological flexibility in the psychological well-being of adolescent girls

Ana Laura Mendes<sup>1,2</sup> · Maria Cristina Canavarro<sup>1</sup> · Cláudia Ferreira<sup>1</sup>

Accepted: 25 October 2021

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2021

## Abstract

Research has suggested that the perception of life satisfaction and quality of life tends to decrease during adolescence, and points out that adolescent girls tend to report lower levels of psychological well-being when compared with adolescent boys. Furthermore, studies have highlighted the role of affiliation indicators in the psychological well-being of adolescent girls. However, the study of the mechanisms that mediate this relationship remains scarce. Thus, the current study intends to explore the roles of self-compassion attitudes and psychological flexibility in association between early affiliative memories and current feelings of social safeness and the psychological well-being of girls, through path analysis. The study was conducted with 221 female adolescents, between 12 and 18 years of age, who completed self-report measures. The path model accounted for 22%, 17%, 18% and 52% of the variances of current feelings of social safeness, self-compassion attitudes, psychological flexibility and psychological well-being of adolescent girls, respectively, and revealed a very good fit. Results showed that early affiliative memories and the experience of feeling safe in current social relationships were positively related to psychological well-being of girls through higher levels of self-compassion and psychological flexibility. These findings suggest that not only affiliation indicators are important for the psychological well-being of adolescent girls but also the presence of specific adaptive emotion regulation processes. Prospective studies should further confirm these findings.

**Keywords** Adolescence · Affiliation indicators · Self-compassion · Psychological flexibility · Well-being

## Introduction

During the last years, children and adolescents' health-related quality of life (HRQoL) has gained increased importance in psychology and public health research (Ravens-Sieberer et al., 2007). In fact, it is consensual that quality of life in this developmental phase is the basis of well-being and life quality later in life (Bisegger et al., 2005).

The World Health Organization (WHO) considers the quality of life to be a multidimensional construct based on the individual's perception of their physical health,

psychological well-being, social relationships, level of autonomy, and interaction with their environment and social context (e.g., Ravens-Sieberer et al., 2007). Moreover, there is evidence that the perception of life satisfaction and quality of life tends to decrease during adolescence (e.g., Bisegger et al., 2005; Goldbeck et al., 2007). Also, adolescent females are identified as a risk group (WHO, 2016) for the development of psychopathology symptoms, and tend to report lower levels of psychological well-being, when compared with adolescent males (Ravens-Sieberer et al., 2000).

Early affiliative interactions have long been considered as playing an important role in subsequent well-being (e.g., Gilbert & Perris, 2000). In fact, early experiences characterized by rejection, neglectfulness, abuse and criticism have been linked to elevating vulnerability to psychopathology and later maladjustment (Gilbert et al., 2006; Irons et al., 2006). On the other hand, childhood and early adolescent interactions, when marked by feelings of warmth, love, safeness and care seem to hold a positive impact on emotion regulation, well-being and mental health (e.g., Baldwin & Dandeneau, 2005; DeHart

---

✉ Ana Laura Mendes  
alaurammendes@gmail.com

<sup>1</sup> Center for Research in Neuropsychology and Cognitive and Behavioral Intervention (CINEICC), Faculty of Psychological and Education Sciences, University of Coimbra, Coimbra, Portugal

<sup>2</sup> CINEICC, Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra, Rua do Colégio Novo, Apartado, 6153 3001-802 Coimbra, Portugal

et al., 2006; Irons & Gilbert, 2005; Mikulincer & Shaver, 2004). Moreover, in the face of stressful and threatening events, individuals who recall their early affiliative experiences as more secure and warm tend to present a higher ability to be self-soothing and self-reassuring and reveal good mental health indicators (e.g., Cacioppo et al., 2000; Gilbert et al., 2006). Furthermore, there is also evidence that the recall of early positive experiences is linked with feelings of connectedness and safeness in social contexts (Mikulincer & Shaver, 2007; Gilbert, 2002; Richter et al., 2009). This issue gains even more relevance when we talk about adolescence since it is a period characterized by a series of psychological and social changes that make it especially sensitive to social signals (Gilbert & Irons, 2009; Irons & Gilbert, 2005; Wolfe & Mash, 2006).

Specifically, the experience of feeling safe in social relationships (that is, a sense of being accepted, loved and valued by others; Mikulincer & Shaver, 2007; Gilbert, 2002; Richter et al., 2009) has been associated with adaptive emotional strategies to deal with adversity (e.g., stress, personal failures and difficulties; Cacioppo et al., 2000; Gilbert, 2005; Gilbert, 2010). One of these adaptive emotional strategies is the ability to be self-compassionate, which seems to be a significant source of happiness, life satisfaction, psychological resilience and psychological well-being (e.g., & Curry, 2011; Duarte et al., 2015; Neff & Germer, 2017).

According to Neff (2009, 2012), self-compassion involves three core domains: self-kindness (i.e., the ability to be kind and understanding towards oneself rather than being harshly critical); common humanity (i.e., the ability to recognize that one's experience is part of a larger human experience rather than feeling isolated and separated); and mindfulness (i.e., being aware of present moment experiences rather than the over-identification with thoughts and feelings). The research focused on the adolescent population indicates that self-compassion seems to be important to adolescent's experiences (Neff & McGehee, 2010). Particularly, research conducted on adolescents seems to indicate that self-compassion has its roots in contexts that are characterized by secure attachment and early positive experiences, and is linked with emotional well-being and mental health (Cunha et al., 2013; Bluth & Blanton, 2015; Marshall et al., 2015; Neff & McGehee, 2010). Other studies conducted with adolescents seem to have demonstrated that the ability to be self-compassionate may be an important protective factor against psychological suffering and psychopathology (e.g., Bluth & Blanton, 2015; Bluth et al., 2016; Marshall et al., 2015; Neff & McGehee, 2010; Muris et al., 2016; Zeller et al., 2015). In contrast, associations between lower levels of self-compassion and negative outcomes were suggested, namely with depression, anxiety and negative affect (e.g., Barry et al., 2015; Bluth & Blanton, 2015; Zeller et al., 2015).

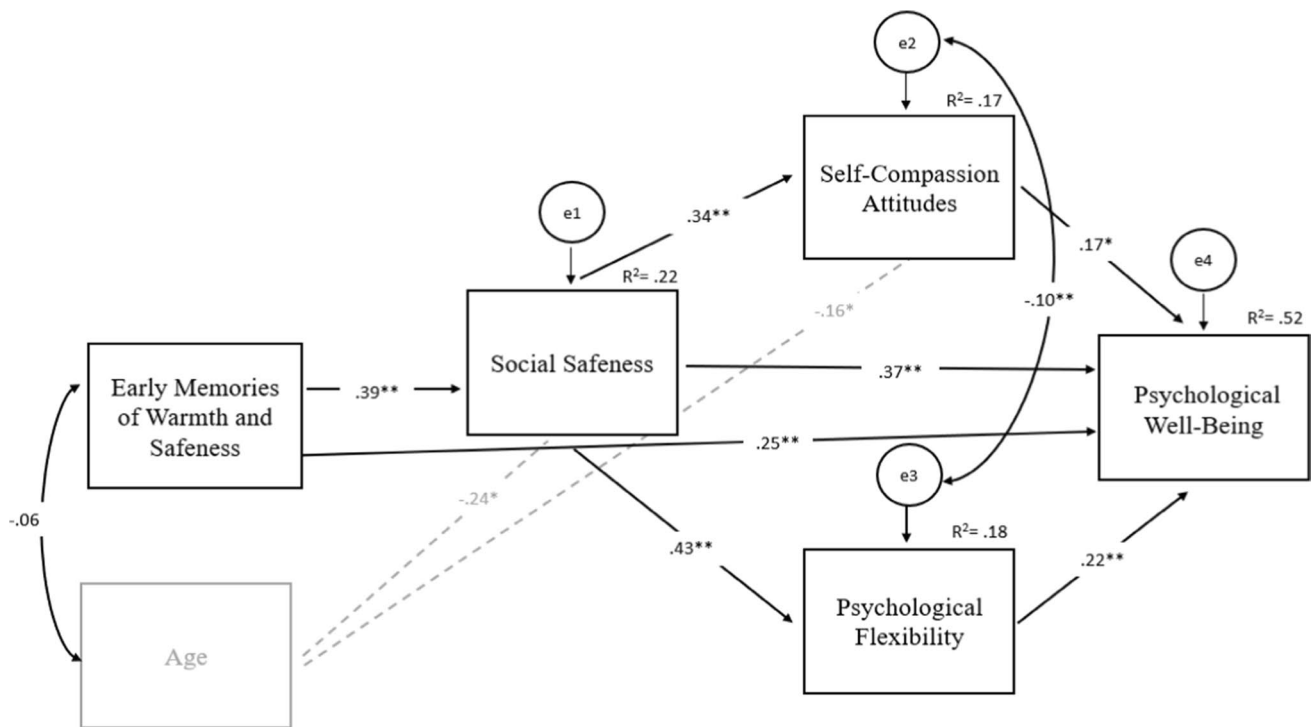
Literature has reported that another adaptive emotional strategy that seems to have a protective effect on mental health is psychological flexibility (Hayes et al., 2012). This process is characterized by the ability to be in the present moment (i.e., accepting the internal experiences even when those experiences are undesirable, uncomfortable and painful), and to adopt flexible behaviors to respond to those aversive experiences (Hayes et al., 2012). Psychological flexibility may help adolescents to deal effectively with physical, cognitive and social changes posed by this developmental stage (Wenar & Kerig, 2000). According to the ACT approach, psychological flexibility implies that our actions or behaviors reflect chosen personal values and interests (e.g., Hayes et al., 2004), and seem to be associated with psychological well-being indicators and mental health (Kashdan & Rottenberg, 2010). In contrast, when young people demonstrate prevalent psychological inflexibility, they tend to engage in attempts to control aversive thoughts, emotions and behaviours, which can lead to many forms of psychopathology (Kashdan & Rottenberg, 2010).

Although self-compassion and psychological flexibility are identified as two internal psychological resources that may contribute to adaptive emotion regulation, the majority of research related to the association between these psychological processes and mental health has been conducted in the adult population. Data related to the role of self-compassion and psychological flexibility in adolescence is promising but is in a primary phase. Moreover, as far as we know, no study has explored the role of these two mechanisms simultaneously in adolescence. Thus, the main goal of this study was to explore whether the association between affiliation indicators (i.e., early affiliative memories and current feelings of social safeness) and psychological well-being are mediated by self-compassion attitudes and psychological flexibility. Considering the concern of the WHO (2020) in relation to issues involving mental health, well-being and the quality of life of female adolescents, this study was specifically focused on a community sample of adolescent girls. We expected that adolescents who reported earlier positive memories and higher levels of current feelings of social safeness would have better indicators of psychological well-being, through higher levels of self-compassion and psychological flexibility (see Fig. 1).

## Method

### Participants

The current cross-sectional study was conducted in a sample of 221 adolescent girls, between 12 and 18 years of age ( $M = 14.10$ ,  $SD = 1.54$ ). These adolescents were in classes from 7th to 11th grade ( $M = 8.68$ ,  $SD = 1.31$ ). One hundred



**Fig. 1** Final path model. Standardized Path Coefficients among Variables are Presented Note.  $*p < .01$ ;  $**p < .001$ .

and seventy-six adolescent girls were in middle school (7th, 8th and 9th grades, ages 12–15) and forty-five were in high school (10th and 11th grades, ages 16–18). Concerning age classes (Spano, 2004), a total of 127 adolescents (57.5%) were in the early stage of adolescence (ages 12–14), 84 (38%) were in the middle phase of adolescence (ages 15–16), and 10 (4.6%) were in the late stage of adolescence (ages 17–18). Two hundred and eighteen (98.6%) participants lived in the center of Portugal and 3 (1.4%) lived in the north. One hundred and fifty-six (70.6%) lived in an urban zone and 65 (29.4%) in a rural zone.

**Procedures**

This study is part of a wider research studying the role of different emotion regulation processes on adolescents’ well-being and mental health. The study was presented to and approved by the relevant local authorities, namely the Portuguese Ministry of Education (registration n° 0596700001), the National Commission for Data Protection (authorization n° 109/2017), and the Ethics Committee of the institutions involved. The study’s aims and procedures were then presented to the boards of five Portuguese public schools of lower secondary education (middle schools) and higher secondary education (high

schools), which approved the study and invited the students to participate.

The Board of Directors of the Schools, participants and their legal guardians were informed about the aims, purpose and procedures of the study, as well as the voluntary and anonymous character of their participation, and gave their written informed consent. Also, participants were informed that their answers were confidential and would only be used for the study. The following criteria for inclusion were met: a) presenting informed consent form signed by parents/legal guardians; b) being between 12 and 18 years old; and c) not reporting a physical or mental difficulty that could compromise the completion of the self-report measures. The sample was collected in person between December 2019 and January 2020.

The participants completed a set of self-report questionnaires during a class in the presence of the teacher in charge and one of the researchers who were available to assist and clarify doubts about the instructions or content of the questionnaires whenever necessary. Lastly, to avoid confounding among variables, self-report measures were administered using a counterbalanced design. The counterbalanced design was made by altering the sequence of the presentation of the self-response measures in the questionnaire, in order to avoid that they could influence the response to each other.

## Measures

The participants completed the Portuguese versions of the following measures, which are validated for an adolescent population.

### Early Memories of Warmth and Safeness Scale - Adolescents (EMWSS-A)

The EMWSS-A (Portuguese version for adolescents by Cunha et al., 2014) includes 21 items and assesses the recall of positive emotions in childhood. Items are rated on a five-point Likert scale (ranging from 0 = “No, never” to 4 = “Yes, most of the time”). The scale presented good psychometric properties in the original adults’ version ( $\alpha = .91$ ; Richter et al., 2009) and in the adolescent Portuguese version ( $\alpha = .95$ ; Cunha et al., 2014). In this study, Cronbach’s  $\alpha$  was .96.

### Social Safeness and Pleasure Scale - Adolescents (SSPS-A)

The SSPS-A (Portuguese version for adolescents by Miguel et al., 2019) is an 11-item self-report measure that assesses the frequency with which individuals feel a sense of safeness, warmth, and reassurance in their social contexts. Items are rated on a five-point scale (0 = “Never” to 4 = “Almost always”). Cronbach’s alpha showed values of .92 and .93 for the original (Gilbert et al., 2009) and the Portuguese versions (Miguel et al., 2019), respectively. In the current study, the scale presented a Cronbach’s alpha of .95.

### Self-Compassion Scale (SCS)

The SCS (Portuguese version for adolescents by Cunha et al., 2016) is a self-report questionnaire, with 26 items, that measures self-compassion (i.e., assessing the respondents’ attitudes towards themselves in difficult times). Items are rated on a five-point scale (0 = “Almost never” to 5 = “Almost always”). SCS comprises a positive main component, which contains the self-kindness, common humanity and mindfulness subscales; and a main negative one, including the self-judgment, isolation, and over-identification subscales. According to the purpose of this study, only the composite measure of the three positive dimensions of the SCS was used and defined as “Self-Compassion”. The scale has shown good psychometric properties, with a Cronbach’s alpha value of .89 in the Portuguese version (Cunha et al., 2016). Concerning the current study, Cronbach’s alpha for the composite measure of the three positive dimensions of SCS (Costa et al., 2016) was .90.

### Avoidance and Fusion Questionnaire for Youth (AFQ-Y)

The AFQ-Y (Portuguese version for adolescents by Cunha & Santos, 2011) includes 17 items assessing the construct of psychological inflexibility (measured through the processes of cognitive fusion and experiential avoidance), in children and adolescents. Participants are asked to rate the items using a five-point scale (1 = “Not at all true” and 5 = “Very true”), with higher scores revealing increased levels of psychological inflexibility. The original scale (Greco et al., 2008) and the Portuguese version for adolescents (Cunha & Santos, 2011) present good psychometric properties. The scale presented a Cronbach’s alpha of .87 in the current study. For this study, the scores were reversed to obtain a measure of psychological flexibility.

### Health-Related Quality of Life Measurement in Children and Adolescents – \_Short Version (KIDSCREEN-27)

The KIDSCREEN-27 (Portuguese version by Gaspar & Matos, 2008) comprises 27 items and assesses children’s and adolescents’ subjective health and well-being (generic health-related quality of life - HRQOL). The scale involves five dimensions: physical well-being; psychological well-being; autonomy & parents; peers & social support; and school environment. Higher scores in this scale indicate better quality of life. In the original study, the reliability ( $\alpha$ ) of each one of the five dimensions was above .70 (Ravens-Sieberer et al., 2007). In the current study, only the dimension of psychological well-being, which includes positive emotions and satisfaction with life, and reveals the positive perceptions and emotions experienced by the individual was considered and presented a Cronbach’s alpha of .81.

## Data Analysis

An a priori power analysis was conducted using G\*Power3 (Faul et al., 2007), through the statistical test linear multiple regression (Fixed model,  $R^2$  increase), with a small effect size ( $f = .15$ ) and an alpha of .05. Results showed that a sample of 129 participants was required to achieve a power of .95.

Descriptive and correlational analyses were performed using the Statistical Package for the Social Sciences (SPSS, version 22.0; IBM SPSS, Chicago, IL). Specifically, group differences in each variable regarding the area of residence (girls from an urban zone and girls from a rural zone) were examined through t-tests for independent samples, and group differences in each variable regarding age classes were conducted using a One-way ANOVA. Furthermore, the Analysis of Moment Structures software (AMOS, version 22.0; IBM® SPSS® AMOS™ 22; Arbuckle, 2013) was used to

explore the model (Fig. 1) which tested the hypothesis that the recall of early affiliative relationships with caregivers (exogenous, independent variable) would present a significant effect on the psychological well-being of girls (endogenous, dependent variable), through the mediational effects of current feelings of social safeness, self-compassion attitudes and psychological flexibility (endogenous, mediator variables), while controlling the effect of age. The Maximum Likelihood method was selected for the estimation of the regression coefficients in the model and to compute fit statistics. The adequacy of the model was analyzed considering the following goodness of fit indices: Chi-Square ( $\chi^2$ ), with a nonsignificant value ( $p > .050$ ) indicates a very good model fit; the Comparative Fit Index (CFI) and Tucker Lewis Index (TLI), with values above .95 indicating a very good fit; and the Root Mean Square Error of Approximation index (RMSEA), which reveals a good fit when values are  $\leq .05$  (Kline, 2011; Tabachnick & Fidell, 2013). The Bootstrap resample method was conducted to test the significance of the mediational paths (with 5000 Bootstrap samples and 95% confidence intervals around the standardized estimates of total, direct and indirect effects). The effect is statistically significant ( $p < .050$ ) if in the interval between the lower and the upper bound of the 95% bias-corrected confidence zero is not included (Kline, 2011).

## Results

### Preliminary Data Analyses

To allow the assumption of the univariate and multivariate normality, the coefficients of Skewness and Kurtosis were analyzed. Skewness values ranging from .19 (age) to -2.23 (early affiliative memories), and with Kurtosis values ranging from -.04 (psychological flexibility) to 6.41 (early affiliative memories). These values indicated the absence of severe violation of normal distribution ( $|Sk| < 3$  and  $|Ku| < 8-10$ ; Kline, 2011).

### Descriptive Statistics and Correlations

Differences in each variable according to sociodemographic characteristics (i.e., area of residence and age classes) were explored. Specifically concerning the area of residence, results from the t-test for independent samples indicated that the two groups (girls from an urban zone and girls from a rural zone) did not present significant differences concerning early memories of warmth and safeness [ $t_{(218)} = 1.04, p = .298$ ], current feelings of social safeness [ $t_{(218)} = -.57, p = .573$ ], self-compassion attitudes [ $t_{(160.50)} = .75, p = .458$ ], psychological flexibility [ $t_{(218)} = .49, p = .628$ ] and psychological well-being [ $t_{(218)} = 1.43, p = .155$ ]. Considering age classes [C1: ages 12–14 (n = 127); C2: ages 15–16 (n = 84); C3: ages 17–18 (n = 10)], One-Way ANOVA results, using the Tukey HSD test for Post Hoc comparisons, are presented in Table 1.

To explore the associations between variables, Pearson product-moment correlations were conducted (Table 2). Results revealed that age was negatively associated with current feelings of social safeness, self-compassion attitudes and the psychological well-being of girls. Positive correlations, with weak-to-moderate magnitudes, were found between early memories of warmth and safeness and current feelings of social safeness, self-compassion attitudes, psychological flexibility and psychological well-being of girls. In turn, positive correlations, which were moderate to high, were found between current feelings of social safeness and all the other variables under study. Also, the psychological well-being of adolescent girls was positively and moderately associated with self-compassion attitudes and psychological flexibility, which in turn were correlated with each other.

### Path Analysis

A fully saturated model with 27 parameters was initially explored. The following path coefficients were not significant: the paths from age to psychological flexibility ( $b_{age} = -.14; SE_b = .50; Z = -.27; p = .786; \beta = -.02$ ),

**Table 1** Means (M) and Standard deviations (SD) and ANOVA results for comparison between age classes

	Class 12–14 (C1) (n = 127)		Class 15–16 (C2) (n = 84)		Class 15–16 (C3) (n = 10)		F; df	p	Post Hoc
	M	SD	M	SD	M	SD			
Early Memories of Warmth and Safeness	73.26	8.59	72.63	9.08	70.10	18.31	.57; 2	.564	–
Social Safeness	43.00	8.91	38.36	9.05	37.60	11.01	7.37; 2	.001	C1 > C2
Self-Compassion Attitudes	3.32	.79	2.96	.65	2.90	.72	6.74; 2	.001	C1 > C2
Psychological Flexibility	36.20	12.81	33.23	10.62	30.90	6.74	2.18; 2	.116	–
Psychological Well-Being	17.49	3.96	15.33	4.35	14.90	4.84	7.64; 2	.001	C1 > C2

**Table 2** Means, Standard Deviations, and Intercorrelation Scores on Self-Report Measures (N=221)

Measures	M	SD	1	2	3	4	5
1. Age	14.51	1.49					
2. Early Memories of Warmth and Safeness	72.88	9.35	-.06				
3. Social Safeness	40.99	9.32	-.27**	.41**			
4. Self-Compassion Attitudes	3.16	.76	-.25**	.21*	.38**		
5. Psychological Flexibility	34.83	11.88	-.13	.21*	.43**	.24**	
6. Psychological Well-Being	16.55	4.28	-.25**	.48**	.63**	.41**	.47**

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

and psychological well-being of girls ( $b_{\text{age}} = -.21$ ;  $SE_b = .14$ ;  $Z = -1.47$ ;  $p = .141$ ;  $\beta = -.07$ ); and the paths from early affiliative memories to psychological flexibility ( $b_{\text{early affiliative memories}} = .06$ ;  $SE_b = .09$ ;  $Z = .67$ ;  $p = .506$ ;  $\beta = .04$ ), and self-compassion ( $b_{\text{early affiliative memories}} = .01$ ;  $SE_b = .01$ ;  $Z = 1.08$ ;  $p = .278$ ;  $\beta = .07$ ). After the removal of these nonsignificant paths, results indicated that the model accounted for 22% of the variance on current feelings of social safeness, 17% of the variance on self-compassion, 18% of the variance on psychological flexibility and 52% of the variance on psychological well-being of girls. Good model fit indices were achieved: CMIN/df = .960,  $\chi^2(4) = 3.841$ ,  $p = .428$ ; NFI = .999, CFI = 1.000, TLI = 1.002; RMSEA = .000,  $p = .660$ , 95% CI = .000 to .100.

Results indicated that early affiliative memories presented direct associations of .39 ( $b_{\text{early affiliative memories}} = .39$ ;  $SE_b = .06$ ;  $Z = 6.55$ ;  $p < .001$ ), and of .25 ( $b_{\text{early affiliative memories}} = .11$ ;  $SE_b = .02$ ;  $Z = 4.83$ ;  $p < .001$ ) on current feelings of social safeness and the psychological well-being of girls, respectively. In turn, current feelings of social safeness were directly and positively associated with self-compassion ( $\beta = .34$ ,  $b = .03$ ,  $SE_b = .01$ ,  $Z = 5.27$ ,  $p < .001$ ), psychological flexibility ( $\beta = .43$ ,  $b = .55$ ,  $SE_b = .08$ ,  $Z = 7.05$ ,  $p < .001$ ), and the psychological well-being of adolescent girls ( $\beta = .37$ ,  $b = .17$ ,  $SE_b = .03$ ,  $Z = 6.45$ ,  $p < .001$ ). Furthermore, self-compassion and psychological flexibility presented, respectively, a direct association of .17 ( $b_{\text{self-compassion}} = .93$ ;  $SE_b = .29$ ;  $Z = 3.24$ ;  $p < .010$ ) and of .22 ( $b_{\text{psychological flexibility}} = .08$ ;  $SE_b = .02$ ;  $Z = 4.19$ ;  $p < .001$ ) on the psychological well-being of girls. An examination of the indirect effects revealed that early affiliative memories presented an indirect association on self-compassion ( $\beta = .13$ ) and on psychological flexibility ( $\beta = .17$ ), which were significantly mediated by current feelings of social safeness and connectedness (CI = .06 to .22;  $p < .010$ , and CI = .11 to .24;  $p < .001$ , respectively). Moreover, results indicated that early affiliative memories presented an indirect link on the psychological well-being of girls ( $\beta = .20$ ), again significantly mediated by current feelings of social safeness, self-compassion and psychological

flexibility (CI = .14 to .28;  $p < .001$ ). Finally, current feelings of social safeness presented an indirect association of .15 on the psychological well-being of girls, mediated by self-compassion and psychological flexibility (CI = .09 to .22;  $p < .001$ ).

## Discussion

The current study intended to examine whether self-compassion attitudes and psychological flexibility would act as mediators in the relationship between affiliation indicators (i.e., early affiliative memories and current feelings of social safeness) and the psychological well-being of adolescent girls. Indeed, the understanding of the emotional processes that underlie adolescents' psychological well-being has been pointed out as a priority in psychology and public health research (Park, 2004; Seiffge-Krenke et al., 2010).

Firstly, comparisons between age classes were conducted and revealed significant differences between the current feelings of social safeness, self-compassion attitudes and psychological well-being. However, when examining individual Post Hoc comparisons, these results are only attributed to differences between age class 1 (ages 12–14) and age class 2 (ages 15–16), suggesting the importance of further exploring the transition between these age classes. Additionally, correlation analyses revealed, as expected, that early affiliative memories, current feelings of social safeness, self-compassion attitudes and psychological flexibility were significantly associated with the psychological well-being of girls. Furthermore, it is noteworthy that age was inversely related to the psychological well-being of adolescent girls. This specific data seems to be consistent with previous literature that reveals a decrease in quality of life during adolescence (e.g., Bisegger et al., 2005; Goldbeck et al., 2007).

Findings from path analysis followed our main hypothesis: that early affiliative memories with caregivers and the experience of feeling safe in social relationships were positively related to the psychological well-being of girls. Furthermore, results seem to demonstrate that this relationship is mediated through self-compassion attitudes and

psychological flexibility. The examined model presented an excellent fit to empirical data, accounting for 52% of the variance of the psychological well-being of girls. Furthermore, results revealed that 22% of the variance of current feelings of social safeness was possibly explained by early affiliative memories. Simultaneously, the analysis of this model suggested that 17% of the variance of self-compassion attitudes and 18% of the variance of psychological flexibility could have been indirectly explained by the recall of early affiliative experiences through current feelings of social safeness. Also, results revealed that the recall of early positive interactions with caregivers potentially explained higher levels of the psychological well-being of girls via higher levels of current feelings of social safeness, self-compassion attitudes and psychological flexibility.

Taken together, these results suggest that adolescent girls who are able to access early affiliative interactions with family figures tend to report more safer relationships with others and, consequently, tend to present better levels of psychological well-being. Furthermore, these findings may also indicate that the ability to recall memories of being protected and cared for within family seems to favor the development of self-compassion attitudes (i.e., the adoption of a kind attitude towards the self) and psychological flexibility (i.e., the capacity to be in contact with the present moment, along with the ability to persist in more effective actions committed with one's values), which have a fundamental role in the psychological well-being of these adolescent girls. Although this model has never been fully tested, specific relationships between some variables has been previously studied. Regarding the recall of early affiliative memories with close figures, this result is in line with previous research, which demonstrated an association between the evocation of these early memories and the experience of feeling safe in social relationships, both in adult (Ferreira et al., 2018; Matos et al., 2015) and adolescent samples (Marta-Simões et al., 2020; Mendes et al., 2020a). Furthermore, the relationship between the recall of these affiliative memories and the psychological well-being has been reported in the literature, both in adult (Marta-Simões et al., 2016) and adolescent samples (Marta-Simões et al., 2020; Mendes et al., 2020b). Further, the mediating role of self-compassion in the association between and the psychological well-being has been previously investigated in a sample of adult women (e.g., Marta-Simões et al., 2016).

Overall, the current study seems to emphasize the association between early affiliative memories and current feelings of social safeness with psychological well-being of girls. Furthermore, these results seem to highlight the importance of self-compassion attitudes and psychological flexibility as internal psychological resources associated with the subjective perception of well-being. Moreover, the current findings may contribute to a better understanding of the emotional

mechanisms that underlie the psychological well-being of adolescent girls.

Nonetheless, some limitations should be mentioned when taking our findings into account. First, the main limitation is the cross-sectional design of the study, which limits the establishment of any causal relationships among the variables. Future investigations should use longitudinal designs to further explore whether the nature and directionality of the model paths are supported over time. Second, the use of self-report measures is an important limitation, because it may be susceptible to social desirability bias. Thus, to reduce social desirability bias, prospective studies should include the use of other assessment methodologies (e.g., structural interviews), other sources of information (e.g., parents/legal guardians, peer group, teachers and other significant figures) or the inclusion of a social desirability questionnaire in the protocol. Third, other variables (such as socio-demographic characteristics, life events and family dynamic) may be considered in the study of the psychological well-being of adolescents and should be explored in future studies. Furthermore, several other confounding factors (e.g., socioeconomic status, marital relationship between parents, history of school bullying) may also limit this study, which should be taken into account in future studies. Although the sample of the current study was of adequate size, this sample cannot be considered to be representative of the adolescent population. In fact, the sample was exclusively composed of girls, since this study is part of a larger project in which the focus is on the mental health of adolescent females. Future studies should examine the tested model in other samples (e.g., adolescent males). Further examination could also be conducted in adolescents with psychological difficulties, which could inform future research and intervention approaches. Also, the distribution of the sample by age classes is not homogenous, which may constitute a constraint for the generalization of the results. However, when exploring the differences between age classes, the Tukey HSD test for Post Hoc comparison was chosen due to its sensitivity to different sample sizes. Finally, another limitation concerns the fact that adolescent females were recruited in school units in only the centre region of Portugal, which hence restrains the generalization of the results. However, these schools were selected to include rural and urban contexts.

To conclude, this study might provide important treatment directions by emphasizing the potential role of self-compassion attitudes and psychological flexibility as internal psychological resources that influence the link between early affiliative memories and current feelings of social safeness and its associations with the psychological well-being of adolescent girls. Furthermore, these findings appear to hold important implications for research, clinical practice, and community settings, emphasizing the importance of understanding, assessing and working potential adaptive

mechanisms (such as self-compassion and psychological flexibility), that can contribute to an improvement in the psychological well-being and quality of life of adolescents. Thus, prevention and intervention programs focused on mindfulness training, compassion and acceptance and commitment-based therapies seem to be crucial for adolescents.

**Availability of Data and Material** The datasets collected and analysed during the current study are not publicly available due to the present research is part of a wider research, thus the data is still being used by the authors.

**Funding** Research by (*name of the first author of the manuscript*) is supported by a Ph.D. Grant (SFRH/BD/119286/2016) sponsored by the Portuguese Foundation for Science and Technology (FCT), the Human Capital Operational Programme (POCH) and the European Union (UE).

## Declarations

**Ethical Approval** All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

**Informed Consent** Informed consent was obtained from all participants for being included in the study.

**Conflict of Interest** On behalf of all authors, the corresponding author states that there is no conflict of interest.

## References

- Arbuckle, J. L. (2013). *Amos* (version 22.0) [computer program]. SPSS.
- Baldwin, M. W., & Dandeneau, S. D. (2005). Understanding and modifying the relational schemas underlying insecurity. In M. W. Baldwin (Ed.), *Interpersonal cognition* (p. 33–61). Guilford Press.
- Barnard, L. K., & Curry, J. F. (2011). Self-compassion: Conceptualizations, correlates, & interventions. *Review of General Psychology, 15*(4), 289–303. <https://doi.org/10.1037/a0025754>
- Barry, C. T., Loflin, D. C., & Doucette, H. (2015). Adolescent self-compassion: Associations with narcissism, self-esteem, aggression, and internalizing symptoms in at-risk males. *Personality and Individual Differences, 77*, 118–123. <https://doi.org/10.1016/j.paid.2014.12.036>
- Bisegger, C., Cloetta, B., Rueden, U., Abel, T., Sieberer, R., & European KIDSCREEN Group. (2005). Health-related quality of life: Gender differences in childhood and adolescence. *Schweizerische Gesellschaft für Sozial- und Präventivmedizin, 50*(5), 281–291. <https://doi.org/10.1007/s00038-005-4094-2>
- Bluth, K., & Blanton, P. W. (2015). The influence of self-compassion on emotional well-being among early and older adolescent males and females. *The Journal of Positive Psychology, 10*(3), 219–230. <https://doi.org/10.1080/17439760.2014.936967>
- Bluth, K., Roberson, P. N. E., Gaylord, S. A., Faurot, K. R., Grewen, K. M., Arzon, S., & Girdler, S. S. (2016). Does self-compassion protect adolescents from stress? *Journal of Child and Family Studies, 25*(4), 1098–1109. <https://doi.org/10.1007/s10826-015-0307-3>
- Cacioppo, J. T., Berntson, G. G., Sheridan, J. F., & McClintock, M. K. (2000). Multilevel integrative analyses of human behavior: Social neuroscience and the complementing nature of social and biological approaches. *Psychological Bulletin, 126*(6), 829–843. <https://doi.org/10.1037/0033-2909.126.6.829>
- Corsano, P., Majorano, M., & Champretavy, L. (2006). Psychological well-being in adolescence: The contribution of interpersonal relations and experience of being alone. *Adolescence, 41*(162), 341–353.
- 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>
- Cunha, M., & Santos, A. M. (2011). Avaliação da inflexibilidade psicológica em adolescentes: Estudo das qualidades psicométricas da versão Portuguesa do avoidance and fusion questionnaire for youth (AFQ-Y) [assessment of psychological inflexibility in adolescents: A study of the psychometric qualities of the portuguese version of the avoidance and fusion questionnaire for youth (AFQ-Y)]. *Laboratório de Psicologia, 9*, 133–146. <https://doi.org/10.14417/lp.629>
- Cunha, M., Martinho, M. I., Xavier, A. M. e Espirito-Santo, H. (2013). Early memories of positive emotions and its relationships to attachment styles, self-compassion and psychopathology in adolescence. *European Psychiatry, 28*(Supl. 1), 1. [https://doi.org/10.1016/S0924-9338\(13\)76444-7](https://doi.org/10.1016/S0924-9338(13)76444-7)
- Cunha, M., Xavier, A., & Castilho, P. (2016). Understanding self-compassion in adolescents: Validation study of the self-compassion scale. *Personality and Individual Differences, 93*, 56–62. <https://doi.org/10.1016/j.paid.2015.09.023>
- Cunha, M., Xavier, A., Martinho, M. 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*(2), 245–259.
- DeHart, T., Pelham, B. W., & Tennen, H. (2006). What lies beneath: Parenting style and implicit self-esteem. *Journal of Experimental Social Psychology, 42*(1), 1–17. <https://doi.org/10.1016/j.jesp.2004.12.005>
- 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>
- Europe, T. K. G. (2006). The KIDSCREEN questionnaires. Quality of life questionnaires for children and adolescents. Pabst Science Publishers.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G\*power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175–191.
- Ferreira, C., Silva, C., Mendes, A. L., & Trindade, I. A. (2018). How do warmth, safeness and connectedness-related memories and experiences explain disordered eating? *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 23*(5), 629–636. <https://doi.org/10.1007/s40519-017-0449-y>
- Gaspar, T., & Matos, M. G. (2008). *Qualidade de vida em crianças e adolescentes: Versão portuguesa dos instrumentos KIDSCREEN-52* [Quality of life in children and adolescents: Portuguese version of the KIDSCREEN-52 instruments]. Aventura Social e Saúde.
- Gilbert, P. (2002). Body shame: A biopsychosocial conceptualization and overview, with treatment implications. In P. Gilbert & Miles (Eds.), *body shame: Conceptualisation, research and treatment* (pp. 3–54). Brunner Routledge.



- Gilbert, P. (2005). Compassion and cruelty: A biopsychosocial approach. Em P. Gilbert (Ed.), *compassion: Conceptualisations, research and use in psychotherapy* (pp. 9–74). Routledge.
- Gilbert, P. (2010). The CBT distinctive features series. Compassion focused therapy: Distinctive features. Routledge/Taylor & Francis Group.
- Gilbert, P., & Irons, C. (2009). Shame, self-criticism, and self-compassion in adolescence. Em N. B. Allen & I. B. Sheeber (Eds.), *adolescent emotional development and the emergence of depressive disorders* (pp. 195–214). Cambridge University press. <https://doi.org/10.1017/cbo9780511551963.011>.
- Gilbert, P., & Perris, C. (2000). Early experiences and subsequent psychosocial adaptation. An introduction. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice*, 7(4), 243–245. [https://doi.org/10.1002/1099-0879\(200010\)7:4<243::AID-CPP254>3.0.CO;2-H](https://doi.org/10.1002/1099-0879(200010)7:4<243::AID-CPP254>3.0.CO;2-H)
- Gilbert, P., Baldwin, M. W., Irons, C., Baccus, J. R., & Palmer, M. (2006). Self-criticism and self-warmth: An imagery study exploring their relation to depression. *Journal of Cognitive Psychotherapy*, 20(2), 183–200. <https://doi.org/10.1891/jcop.20.2.183>
- 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. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 6(4), 135–143. <https://bit.ly/3nsNsAe>.
- Goldbeck, L., Schmitz, T. G., Besier, T., Herschbach, P., & Henrich, G. (2007). Life satisfaction decreases during adolescence. *Quality of Life Research*, 16(6), 969–979. <https://www.jstor.org/stable/27641333>.
- 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>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). Acceptance and commitment therapy: The process and practice of mindful change (2nd ed.). Guilford Press.
- Hayes, S. C., Strosahl, K. D., Bunting, K., Twohig, M., & Wilson, K. G. (2004). What is acceptance and commitment therapy?. In *a practical guide to acceptance and commitment therapy* (pp. 3–29). Springer, Boston, MA.
- Irons, C., & Gilbert, P. (2005). Evolved mechanisms in adolescent anxiety and depression symptoms: The role of the attachment and social rank systems. *Journal of Adolescence*, 28(3), 325–341. <https://doi.org/10.1016/j.adolescence.2004.07.004>
- 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(3), 297–308. <https://doi.org/10.1348/014466505X68230>
- Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, 30(7), 865–878. <https://doi.org/10.1016/j.cpr.2010.03.001>
- Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). Guilford Press.
- Marshall, S. L., Parker, P. D., Ciarrochi, J., Sahdra, B., Jackson, C. J., & Heaven, P. C. (2015). Self-compassion protects against the negative effects of low self-esteem: A longitudinal study in a large adolescent sample. *Personality and Individual Differences*, 74, 116–121. <https://doi.org/10.1016/j.paid.2014.09.013>
- Matos, M., & Pinto-Gouveia, J. (2010). Shame as a traumatic memory. *Clinical Psychology & Psychotherapy*, 17(4), 299–312. <https://doi.org/10.1002/cpp.659>
- Matos, M., Gouveia, J. P., & Duarte, C. (2015). Constructing a self-protected against shame: The importance of warmth and safety memories and feelings on the association between shame memories and depression. *International Journal of Psychology & Psychological Therapy*, 15(3), 317–335.
- Marta-Simões, 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*, 23(7), 929–938. <https://doi.org/10.1177/1359105316656771>
- Marta-Simões, J., Tylka, T. L., & Ferreira, C. (2020). Potential contributing roles of early affiliative memories, social safety and body appreciation to adolescents' well-being. *Journal of Health Psychology*. <https://doi.org/10.1177/1359105320953463>
- Mendes, A.L., Canavarro, M.C., & Ferreira, C. (2020a). Affiliative interactions and body and eating-related difficulties in adolescent girls: The effects of fears of compassion and feelings of social safety. *Manuscript submitted for publication*.
- Mendes, A.L., Canavarro, M.C., & Ferreira, C. (2020b). Early emotional memories and well-being in adolescence: The roles of shame and self-critical attitudes. *Manuscript submitted for publication*.
- Miguel, R. R., Sousa, R., Brazão, N., Rijo, D., Castilho, P., & Gilbert, P. (2019). Psychometric properties and measurement invariance of the Social Safety and Pleasure Scale in adolescent samples. Manuscript in preparation.
- Mikulincer, M., & Shaver, P. R. (2004). Security-based self-representations in adulthood: Contents and processes. In W. S. Rholes & J. A. Simpson (Eds.), *Adult attachment: Theory, research, and clinical implications* (p. 159–195). Guilford Publications.
- Mikulincer, M., & Shaver, P. R. (2007). A behavioral systems perspective on the psychodynamics of attachment and sexuality. In D. Diamond, S. J. Blatt, & J. D. Lichtenberg (Eds.), *Psychoanalytic inquiry book series: Vol. 21. Attachment and sexuality* (p. 51–78). The Analytic Press/Taylor & Francis Group.
- Muris, P., Meesters, C., Pierik, A., & de Kock, B. (2016). Good for the self: Self-compassion and other self-related constructs in relation to symptoms of anxiety and depression in non-clinical youths. *Journal of Child and Family Studies*, 25(2), 607–617. <https://doi.org/10.1007/s10826-015-0235-2>
- Neff, K. (2009). Self-compassion. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (p. 561–573). The Guilford Press.
- Neff, K. D. (2012). The science of self-compassion. In C. K. Germer & R. D. Siegel (Eds.), *Wisdom and compassion in psychotherapy: Deepening mindfulness in clinical practice* (p. 79–92). The Guilford Press.
- Neff, K. D. & Germer, C. (2017). Self-compassion and psychological wellbeing. In J. Doty (Ed.) *Oxford handbook of compassion science*, chap. 27. Oxford University Press.
- Neff, K. D., & McGehee, P. (2010). Self-compassion and psychological resilience among adolescents and young adults. *Self and Identity*, 9(3), 225–240. <https://doi.org/10.1080/15298860902979307>
- Park, N. (2004). The role of subjective well-being in positive youth development. *The Annals of the American Academy of Political and Social Science*, 591(1), 25–39. <https://doi.org/10.1177/0002716203260078>
- Ravens-Sieberer, U., Auquier, P., Erhart, M., Gosch, A., Rajmil, L., Bruil, J., 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*, 16(8), 1347–1356.
- Richter, A., Gilbert, P., & McEwan, K. (2009). Development of an early memories of warmth and safety scale and its relationship to psychopathology. *Psychology and Psychotherapy: Theory, Research and Practice*, 82(2), 171–184. <https://doi.org/10.1348/147608308X395213>
- Seiffge-Krenke, I., Kiuru, N., & Nurmi, J. E. (2010). Adolescents as “producers of their own development”: Correlates and consequences of the importance and attainment of developmental tasks.

- European Journal of Developmental Psychology*, 7(4), 479–510. <https://doi.org/10.1080/17405620902905249>
- Smetana, J. G., Campione-Barr, N., & Metzger, A. (2006). Adolescent development in interpersonal and societal contexts. *Annual Review of Psychology*, 57, 255–284. <https://doi.org/10.1146/annurev.psych.57.102904.190124>
- Spano, S. (2004). Stages of adolescent development. Research facts and findings. Available at: [http://www.actforyouth.net/resources/rf/rf\\_stages\\_0504.Pdf](http://www.actforyouth.net/resources/rf/rf_stages_0504.Pdf).
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5, pp. 481–498). Pearson.
- Vagos, P., Ribeiro da Silva, D., Brazão, N., Rijo, D., & Gilbert, P. (2017). The early memories of warmth and safeness scale for adolescents: Cross-sample validation of the complete and brief versions. *Clinical Psychology & Psychotherapy*, 24(3), 793–804. <https://doi.org/10.1002/cpp.2059>
- Wenar, C., & Kerig, P. (2000). *Developmental psychopathology: From infancy through adolescence* (4th ed). McGraw-Hill.
- WHO. (2016). Health Behaviour in School-Aged Children (HBSC) Study: International Report From the 2013/2014 Survey. *Health policy for children and adolescents* 7.
- WHO. (2020). Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behaviour in School-aged Children (HBSC) Survey in Europe and Canada International Report. Available at: [https://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0006/442959/Spotlight-on-adolescent-health-and-well-being-HBSC-survey-summary-eng.pdf](https://www.euro.who.int/__data/assets/pdf_file/0006/442959/Spotlight-on-adolescent-health-and-well-being-HBSC-survey-summary-eng.pdf).
- Wolfe, D. A., & Mash, E. J. (2006). *Behavioral and emotional disorders in adolescents: Nature, assessment, and treatment*. Guilford Publications.
- Zeller, M., Yuval, K., Nitzan-Assayag, Y., & Bernstein, A. (2015). Self-compassion in recovery following potentially traumatic stress: Longitudinal study of at-risk youth. *Journal of Abnormal Child Psychology*, 43(4), 645–653. <https://doi.org/10.1007/s10802-014-9937-y>

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.