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THE DEVELOPMENT AND PSYCHOMETRIC VALIDATION OF THE NEW OPENNESS TO COMPASSION SCALE IN A PORTUGUESE SAMPLE

A CONTRIBUTION TO THE COMPASSIONATE ENGAGEMENT AND ACTION SCALES

VOLUME 1

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Resumo

São vários os estudos que ao longo dos anos tentaram compreender as motivações e ações no cerne da compaixão, amplamente definida como uma motivação universal para reconhecer o sofrimento e tentar aliviá-lo. Em 2017, Gilbert et al. criou as *Compassionate Engagement and Action Scales* (CEAS) com o objetivo de medir a autocompaixão, a compaixão pelos outros e a compaixão dos outros. Porém, não existe nenhum estudo, do qual tenhamos conhecimento, que avalie a *abertura* a receber compaixão dos outros. Por esta razão, a presente investigação tem como objetivo primordial contribuir para o estudo psicométrico da CEAS, desenvolvendo uma nova medida de auto-resposta que permita avaliar a abertura a receber compaixão dos outros: a escala de Abertura à Compaixão. Este estudo foi realizado com uma amostra de 284 participantes da população portuguesa, que completaram um conjunto de escalas relativas a diferentes constructos: abertura à compaixão, compaixão pelos outros, compaixão dos outros, memórias de calor e afeto, perceção de importância para os outros, sentimentos de segurança social e conexão com os outros, indicadores psicopatológicos, sentimentos de solidão, dificuldades nos padrões de sono, e ainda um conjunto de questões qualitativas sobre as experiências subjetivas de receber compaixão, que se revelaram um importante complemento para a compreensão da compaixão dos outros e para a literatura atual. A estrutura factorial da escala Abertura à Compaixão revelou valores adequados de ajustamento do modelo e provou ser uma medida fiável, com boa validade e qualidades psicométricas. Adicionalmente, os resultados apontaram para a existência de correlações positivas entre a abertura à compaixão e os três outros fluxos da compaixão, bem como com memórias de calor e afeto, a perceção de importância para os outros e sentimentos de segurança social e conexão com os outros. Em contraste, a abertura à compaixão revelou estar negativamente associada com sentimentos de solidão. Relativamente aos modelos de mediação, os resultados mostraram que a abertura à compaixão medeia parcialmente o impacto das memórias de calor e afeto nos sentimentos de segurança social e conexão com os outros, bem como nos sentimentos de solidão. Desta forma, a escala de Abertura à Compaixão não só provou ser uma válida e fiável medida da abertura à compaixão dos outros, como também uma relevante contribuição às *Compassionate Engagement and Action Scales*, podendo ser uma importante adição à prática clínica e a futuras investigações sobre a compaixão e os seus principais componentes: motivação e ação.

Abstract

Several studies over the years have been trying to understand the motivations and actions in the core of compassion, defined as the universal motivation to recognize the suffering in self and others and the attempt to alleviate that pain. Gilbert et al. (2017) created the Compassionate Engagement and Action Scales (CEAS) that measure self-compassion, compassion to others and compassion from others. However, to the best of our knowledge, there are no studies that assess one's openness to receive compassion from others. For that reason, the present study aimed to contribute to the psychometric study of the CEAS scales, by developing a new self-report measurement that evaluates openness to compassion from others: the Openness to Compassion scale. This study was conducted with a sample of 284 participants from the Portuguese population. Participants completed a set of scales that measured openness to compassion, self-compassion, compassion to others, compassion from others, feelings of mattering to others, early memories of warmth and safeness, feelings of social safeness, psychopathological indicators, feelings of loneliness and difficulties in the sleep patterns. Furthermore, this study included a set of qualitative questions about subjective experiences of receiving compassion from others. Openness to Compassion factor model revealed acceptable fit values, proving to be a valid and reliable measure, with good validity and psychometric qualities. We found that openness to compassion is positively correlated with the three other scales of compassion, the compassionate engagement and action scales, early memories of warmth and safeness, the perception of mattering to others and feelings of social safeness and connectedness to others. Moreover, openness to compassion was also found to be negatively correlated with feelings of loneliness. Mediation analysis showed that openness to compassion partially mediated the impact of early memories of warmth and safeness on feelings of social safeness, and on feelings of loneliness. The qualitative reported data was an important complement to the understanding of receiving compassion from others and to the current literature. Openness to Compassion scale may constitute a relevant contribution to the assessment of one's openness to receive compassion from others and an important addition to the Compassionate Engagement and Action Scales. Furthermore, this scale proved to be a valid and reliable measure that may be used in future research and clinical practice.

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Introduction

Throughout the years, compassion has been defined as a universal and innate motivation to recognize and identify suffering in self and others and being motived to try to alleviate or prevent the pain (Gilbert & Choden, 2013). In fact, the word "compassion" comes from the Latin word "*compati*" meaning "to suffer with" (Strauss et al., 2016). The feeling that arises when we see someone suffer can be traced back to our evolutionary origins. One of many evolutionary perspectives on compassion belongs to Darwin (Strauss et al., 2016) that stated that "those communities which included the greatest number of most sympathetic members would flourish best, and rear the greatest number of offspring". In fact, our essence as social beings is to be careful and alert to the needs of our infants, adopting a posture of caregiver that intends to relieve all kinds of distress and suffering, until the child is prepared to be autonomous and independent (Gilbert, 2019). We can see compassion has an innate motivation with is roots in the caring motivational system. This motivational system assesses potential risks and threats and produces physiological changes that prepare the body for an appropriate behavior (Hinds et al, 2010), and consequently, can provide us with a sense of security and well-being. Even though we learn to feel compassion towards our children, this motivation is widely present in all kinds of social relationships. Being seen as supportive and caregiving, evolutionary speaking, makes us seem more attractive from future sex partners or allies (Gilbert, 2019). These evolutionary challenges have evolved over the years and have been accompanied by a set of advanced cognitive competencies unique to humans. In fact, evolution marked the motivational system for interpersonal relationships, such as cooperation and sharing and providing for the needs of others (Gilbert, 2014).

In 2017, Gilbert and colleagues developed the Compassionate Engagement and Action Scales (CEAS), organized in three scales oriented to measure three different flows of compassion: Self-Compassion, Compassion to Others and Compassion from Others. These different foci of compassion influence each other mutually and make it hard to dissociate them from one another (Gilbert et al., 2017).

The Self-Compassion scale aims to understand in what extent people feel compassion towards themselves when things go wrong and they suffer because of failures, setbacks or disappointments. Several studies over the years have showed that self-compassionate people appear to have less depressive symptoms and greater life satisfaction (Akin, 2010; Gilbert et al., 2017; Neff, 2009). In a study conducted in three

different cultures (Neff, 2011), it was discovered that these benefits of self-compassion may be universal despite cultural differences. Neff (2011) also defends that higher levels of self-compassion may be closely linked to healthier relationships to others and a stronger construct of self-esteem. Shapira and Mongrain (2010) in a study to understand the efficiency of self-compassion in patients with depression reported that individuals that practiced self-compassion every day for one week, through a set of daily online exercises, were less depressed and happier up to 6 months after the study. Furthermore, and according to Gilbert (2009), promoting self-compassion in people with high levels of self-criticism, guilt and self-condemning can result in significant reductions in depression, anxiety, self-criticism, shame, inferiority and submissive behavior.

The Compassion for Others scale aims to measure in what way people feel motivated and sensitized by other people's suffering. Being compassionate to the suffering of others is widely known as the main focus of compassion to the general population, sometimes referred to as *altruism*. In a study conducted by Cosley et al. (2010) it was proved that individuals who sought to be more compassionate for others, also perceived others as compassionate for them. This means that people with higher levels of compassion towards others tend to be engaged to more caring environments and relationships that reciprocate their support (Cosley et al., 2010).

The Compassion from Others scale refers to the experience of receiving compassion from people around us and in what extent we feel supported, loved and cared for in the world. However, for some people receiving compassion from others is highly associated with unpleasant feelings and fears of compassion. A study conducted by Jazaieri et al. (2013) showed that compassion focused meditation can help overcome fears of compassion and have good outcomes such as positive emotions, mindfulness, having life purpose and an appropriate social support. In 2009, Gilbert introduced the compassion focused therapy (CFT), aiming to provide people with skills and attributes to experience inner warmth, safeness and soothing when receiving compassion. To achieve a compassionate mind, it is required that the therapist teaches the client some key aspects such as care for well-being, sensitivity, tolerance to distress, empathy and non-judgment. For those who lack these competencies, Gilbert (2009) also referred that it is possible to promote compassionate feelings towards others through therapeutic relationships. In these cases, the therapist helps the patient to cope with unconformable feelings and to create new feelings of warmth and support.

These facts about compassion raise a relevant question: if compassion has been showed to be associated with good mental health, happiness, life satisfaction, social connectedness, optimism, curiosity, wisdom, adaptive coping and positive affect (Matos et al., 2017b), then why do some individuals feel so afraid of being or receiving compassion? In a study conducted by Matos et al. (2017b) it was found that people can develop fears of compassion from others, for others and for the self. These fears of compassion seem to be closely linked to negative emotional memories of abuse, neglect and shame in early childhood, making these individuals feel threatened when in situations of closeness to other people (Matos et al., 2017b). The main hypothesis of these findings fits on the attachment theory developed by Bowlby (1969) that postulates that caregivers who were unpredictable and critical all the time, were teaching their children that they can never be off guard in interpersonal situations. Similarly, it is common that these insecure attachments may create an avoidance to become close to other people, and so, difficulty in feeling compassion for others. It may even make them feel uncomfortable when presenting other people's distress or confuse this concept with being weak, submissive and letting people take advantage of them (Gilbert et al., 2011). Being afraid of such positive competence may indicate psychopathology, high levels of self-criticism, insecure attachment in childhood, depression, anxiety and stress (Gilbert et al., 2011). Some studies suggest these fears of compassion can be closely linked to negative emotional memories of abuse, neglect and shame in early childhood, making these individuals feel threatened when in situations of closeness to other people (Matos et al., 2017b).

The development of the CEAS receiving compassion from others scale sought to explore people's openness and receptiveness to compassion, but in reality it measured something slightly different: the experience and personal perception of receiving compassion. Many studies over the years have studied "*openness*" as a personality trait, widely recognized in the five factor model (DeYoung et al., 2013; McCrae, 1996). In fact, the *will to be open* has a common ground in joy and gratitude or simply as a way of living life. Also, openness to experience is accepted in the literature as related to flexibility in experiencing new things (McCrae, 1996; Robbins, 2003) and more flexible cognitive processes (McCrae, 1987). In 1997, McCrae and Costa found that openness was positively correlated with social presence and empathy and may depend on one's social environment. However, there are no studies that brought two important concepts together: *openness to receive compassion from others*. For that reason, the present study

aims to contribute to the psychometric study of the new CEAS scale measuring people's openness to receive compassion from others. This new self-report measure, developed by Gilbert and colleagues as part of the CEAS scales, aims to better understand the openness to receive compassion and how receptive and open people can be to respond positively when others are compassionate towards them. Therefore, the main goal of this study is to examine the psychometric proprieties of Openness to Compassion scale in the Portuguese population, by testing a factorial structure composed of two factors: Engagement (as a motivation and sensitivity to the suffering) and Action (as the ability to take wise actions dedicated to prevent or alleviate the pain), using confirmatory factor analysis. Besides, this study aims to analyze the internal consistency, gender differences and construct validity of the Openness to Compassion scale. On one side, we aimed at exploring the association between this new measure and similar constructs, as it is the case of self-compassion, compassion to others, compassion from others and compassionate motivation and actions; and on the other side, we aimed at exploring the association between openness to compassion and different constructs, such as feelings of mattering to others, early memories of warmth and safeness, feelings of social safeness and connectedness to others, psychopathology indicators as depression, anxiety and stress, feelings of loneliness and difficulties in the patterns of sleep. Finally, the current study sought to explore the *mediator* effect of openness to compassion on the relationship between early memories of warmth and safeness and social safeness and connectedness to others, and feelings of loneliness. Additionally, this study also aims to examine participant's qualitative subjective experiences of receiving compassion from others.

Methods and Procedures

Participants

This study was conducted with a sample of 284 participants that can be distinguished in two groups: students and non-students (59.5% students and 40.5% non-students). Participants had, on average, 28 years old (age range from 18 to 60 years old) from which 83% were women and 16.5% were men. From this group of subjects, 76.8% were single, 14.8% married, 3.9% living with a partner, 4.2% were divorced and 0.4% widowed. The years of education ranged from 3 to 20 (M = 14.35; SD = 3.05), and regarding socioeconomic status, 10.4% presented low socioeconomic status, 17.6%

medium, 11.1 high and 1.4% retired, since the majority of participants were students. The socioeconomic status was assessed according to the criteria proposed by Simões (1994) for the Portuguese population.

A related sample of participants completed a set of qualitative questions about their subjective experiences of receiving compassion from others (N = 168) from which only 16% (N = 27) are part of the sample previously described. This new subgroup was composed by 84% women and 16% men, from 18 to 44 years old.

Procedures

Data collection from this study was approved by the ethical committee, nr of series SEDI_fpceuc28.11.2019. Participants signed an informed consent and were informed that their participation was voluntary and all data collected would be confidential, anonymous and only used for this purpose. This investigation had two methods of collecting of data: an online survey disseminated by social media networks, such as facebook, instagram and e-mail; and the same version in paper, for people with difficulties in accessing the internet or that showed preference in writing at hand. Two types of data were collected: 1) quantitative data, collected through a short self-report questionnaire survey, mostly with multiple choice questions with no right or wrong answers, measuring compassion, positive emotions, childhood memories, self-criticism, anxiety and sleep patterns; and 2) qualitative data, assessed through an open question asking participants to describe a past significant experience of receiving compassion from others.

Measures

Compassionate Engagement and Action Scales (CEAS) (Gilbert et al, 2017; Portuguese version by Matos et al, 2015)

(Self-Compassion Scale, Compassion for Others Scale and Compassion from Others Scale)

The Compassionate Engagement and Action Scales (CEAS), with all its components, is a 51-item scale rated on a 10-point Likert scale in which 0 means "*never felt this*" and 10 corresponds to "*I always feel this way*". This method of answering is valid to all scales: Self-Compassion scale (e.g. "*I don't tolerate my suffering*"), Compassion to Others scale (e.g. "*I don't tolerate the suffering of others"*) and Compassion from Others scale (e.g. *"Other people don't tolerate my suffering"*). In addition, the present study aims to understand the psychometric qualities of the fourth

scale of CEAS: a new measurement of one's openness to receive compassion from others. The Openness to Compassion scale (e.g. "*I feel disturbed when other people can't tolerate my suffering*") aims to explore the existing relation between this availability and some indicators of psychological adjustment and well-being.

In specific terms, the main focus of the Self-Compassion scale is to understand to what extent people feel compassion towards themselves. This scale is a 13-item scale with a 10-point Likert score from "*never*" to "*always*" covering different factors, such as Engagement (e.g. "*I reflect on and make sense of my own feelings of distress*") and Action (e.g. "*I think about and come up with helpful ways to cope with my distress*"). In the original study, internal consistency showed a Cronbach's alpha of .77 for the Engagement factor and .90 for the Action factor. In the present study, the Cronbach's alpha for the global scale was .86.

Compassion to Others scale aims to understand in what way people feel compassion towards others when they suffer or are in distress. This is a 13-item scale with a 10-point Likert score from "*never*" to "*always*" on different factors: Engagement (e.g. "*I notice and am sensitive to distress in others when it arises*") and Action (e.g. "*I think about and come up with helpful ways for them to cope with their distress*"). In the original study, internal consistency for the Engagement factor was α =.90 and for the Action factor was α = .94. In the present study, the Cronbach's alpha for the global scale was .92.

In turn, Compassion from Others scale aims to understand in what way we feel like others are compassionate towards ourselves and our suffering. This scale is a 13-item scale with a 10-point Likert score from "*never*" to "*always*" on Engagement (e.g. "*Others reflect on and make sense of my feelings of distress*") and Action (e.g. "*Others think about and come up with helpful ways for me to cope with my distress*") factors. In the original study, internal consistency for the Engagement factor was α =.89 and for the Action factor was α = .91. In the present study, for the global scale the Cronbach's alpha score was α = .95.

In what concerns the new self-report measure, Openness to Compassion scale intends to study if people are open to receive compassion from others and respond with positive and adaptive feelings. This scale is a 13-item scale with a 10-point Likert score from "*never*" to "*always*" covering the factors: Engagement (e.g. "*I am open and moved when others notice and are sensitive to my distressed feelings when they arise in me*") and Action (e.g. "*I am open and moved when others are able to take the actions and do*

the things that will be helpful to me"). Cronbach's alpha as the indicator of internal consistency was α = .94 for the global scale, α = .92 for the Engagement factor and α =.92 for the Action factor.

Compassion Motivation and Action Scales (CMAS) (Steindl et al., Unpublished; Portuguese version by Matos et al, 2018)

(Self-Compassion Scale and Compassion to Others Scale)

The Compassion Motivation and Action Scales (CMAS) is a 30-item scale, which is answered through a 7-point Likert scale in which 1 means "*strongly disagree*" and 7 corresponds to "*strongly agree*". This method of answering is valid to Compassion Motivation and Action subscales: Self-Compassion scale (e.g. *Being compassionate towards myself will improve my general well-being*") and Compassion to Others scale (e.g. "*I will show more attention and concern when I see other people suffering*").

Self-compassion scale aims to understand in what extent people feel compassion towards themselves in difficult moments of their lives. This is a 18-item scale using a 7-point Likert score format, from "*strongly disagree*" to "*strongly agree*" distributed by two different factors: Motivation, which includes Intention and Distress Tolerance, and Action.

Compassion to Others scale aims to understand in what extent people feel motivated and respond with compassion when they see other people suffer. This is a 12-item scale with a 7-point Likert score from "*strongly disagree*" to "*strongly agree*" covered by two different factors: Motivation, which includes Intention and Distress Tolerance, and Action.

In the original study (Steindl, Unpublished) all Cronbach's alpha were above the cut off values of .70, demonstrating good internal consistency. In the present study, the Cronbach's alpha for the global scale was α = .94.

Mattering Index Scale (Elliott, et al., 2004; Portuguese version by Matos et al., 2019)

Mattering to others means that we are a significant part of the world around us. The terrifying experience that we don't matter to others can make us do almost anything to be notice or important in our social environment. The Mattering Index Scale measures one's perception of how much they matter to others. In short, this scale seeks

to understand the importance of self-concept in mattering and how this perception can have an impact in our self-esteem (Elliott & Grant, 2004). Mattering Index Scale is organized in 24 items rated on a 7-point Likert-scale in which 1 means "*I strongly disagree*" and 7 corresponds to "*I strongly agree*". Each item corresponds to one of the three elements related to mattering: awareness - knowing if I am the object of others attention (e.g. "*In social gatherings, no one recognizes me*"); importance - knowing if I am are the object of others importance (e.g. "*There is no one who really takes pride in my accomplishments*"); and reliance - knowing if others choose me or looks out for me (e.g. "*People count on me to be there for them in times of need*").

In the original study, the Mattering Index Scale showed good internal consistency indices, with Cronbach's alpha values ranging from .89 and .90. In the present study, Cronbach's alpha was $\alpha = .91$.

Social Safeness and Pleasure Scale (SSPS) (Gilbert et al., 2009; Portuguese version by Matos & Pinto Gouveia, 2010)

The Social Safeness and Pleasure Scale (SSPS) is a measurement of people's perceptions and experiences of the world as a calm, soothing and warm place, where they feel included, accepted and safe from others (Gilbert et al., 2009). This scale is an 11-item, answered through a 5-point Likert scale, in which higher scores are a sign of a higher sense of safeness and pleasure in the world. As an example, scoring with 1 point in this scale (*almost never*), corresponds to a difficulty in accessing social safeness, leading to feelings of mistrust or fear. The same way, scoring 5 points (*almost always*) means that there is a sense of social safeness and pro-social behavior (e.g. "*I feel secure and wanted*"). The Social Safeness and Pleasure Scale can show us which individuals are more likely to be optimistic about the world and their surroundings, and who has restrict social lives and have difficulties with social relationships (Akin & Akin, 2015). Social safeness is positively associated with self-esteem and healthy relationships, and negatively associated with anxiety, depression, hostility, shame and feelings of inferiority (Gilbert, 2010).

As for the internal consistency, in the original Social Safeness and Pleasure Scale study, Cronbach's alpha was $\alpha = .91$ and test- retest reliability coefficient was .82. In the present study, the Cronbach's alpha for this scale was $\alpha = .94$.

UCLA Loneliness Scale (Russell et al., 1980; Portuguese version by Neto, 1989).

UCLA Loneliness Scale is a 18-item 4-point Likert scale, in which 1 corresponds to *never* felt this way and 4 corresponds to *always* feel this way, being possible to choose any number in between. This scale aims to measure subjective feelings of loneliness and social isolation (e.g. "*There is no one I can turn to*" and "*I feel isolated from others*"). The items of UCLA Loneliness Scale were developed through real words of individuals suffering from loneliness to describe how lonely they felt (Russell et al., 1980). Although the original version was made with all items written in the negative form, the recent revisions in UCLA Loneliness Scale changed the items, in order to have both direct and inverse items (e.g. "*I lack companionship*" and "*There are people I feel close to*").

In terms of internal consistency, UCLA Loneliness Revised Scale showed an α of .94, compared favorably with the alpha coefficient obtained in the original scale (α = .96). In the present study, internal consistency examination showed a Cronbach's alpha of .91.

Other As Shamer Scale (OAS-2) (Portuguese version by Matos et al., 2014)

Other As Shamer Scale (OAS-2) is a short version of the OAS original version. The scale is a self-report measurement of external shame, how one believes to exist in the minds of others and the perception of what others think and feel about themselves (Matos et al., 2015b). The OAS-2 is comprised by 8 items rated on a 4-point Likert scale, in which 0 means *not at all* and 4 corresponds to *almost always*. Feelings of shame are positively related to the score. A higher score in OAS-2 scale corresponds to a higher perception of others as shamers (e.g. "*I feel insecure about others opinions of me*").

The OAS-2 Scale is considered appropriate to measure external shame, having an internal consistency of α =.92. In the present study, Cronbach's alpha was also α = .92.

Early Memories of Warmth and Safeness Scale (EMWS) (Richter et al., 2009; Portuguese version by Matos & Pinto-Gouveia, 2010)

Early Memories of Warmth and Safeness Scale is an important instrument to understand experiences of early childhood, regarding feelings of threat or feelings of

safeness (Richter et al., 2009). This scale is a 21-item 5-point Likert scale in which 0 means "*no, never*" and 4 means "*yes, most of the time*". Early Memories of Warmth and Safeness Scale aims for people recall feelings of warmth, safeness and care in childhood associated with safe environments (e.g. "*I felt cared about*" and "*I felt happy*"), in contrast with neglectful, rejecting and abusive experiences associated with vulnerability to psychopathology (Richter et al., 2009). The last item (e.g. "*I felt relaxed*") was chosen by researchers to ensure easiness after the completion of such emotional scale.

In the original study, Early Memories of Warmth and Safeness Scale had a Cronbach's alpha of .97, showing good values of internal consistency. Cronbach's alpha for this scale in the present study was of .98.

Depression Anxiety Stress Scales (EADS-21) (Lovibond & Lovibond, 1995; Portuguese version by Pais-Ribeiro et al., 2004)

Lovibond and Lovibond (1995) created a scale that covers all symptoms of depression, anxiety and stress with a tripartite model constituted with 21 items. Depression Anxiety Stress Scales (EADS-21) is 21-item 4-point Likert scale that provides a view of these three dimensional factors, in which 0 means "*this doesn't apply to me*" and 4 means "*this applies to me most of the time*". The items are organized in terms of what they aim to measure: depression (e.g. "*I felt that I had nothing to look forward to*") which is highly related with loss of self-esteem and motivation; anxiety (e.g. "*I was worried about situations in which I might panic and make a fool of myself*"), usually associated with intense fear responses; and stress (e.g. "*I found it difficult to relax*"), associated with persistent states of excitement, tension or low resistance to frustration. For the three dimensions, higher scores correspond to more negative affective states.

In the original study, internal consistency was tested through Cronbach's alpha, presenting a α =.85 to depression, α =.74 to anxiety and α =.81 to stress. In the present study, internal consistency for the global scale was α = .95.

Basic Scale on Insomnia symptoms and Quality of Sleep (BaSIQS) (Gomes et al., 2015)

BaSIQS is a 5-point self-report Likert scale from 0 to 4 (with the exception of the two last reversed items), that aims to understand sleep onset continuity and patterns of sleep. This scale comprises 7 items addressing difficulties falling asleep (e.g. "*After*

going to bed, how long it takes for you to fall asleep?"), frequent or prolonged night awakenings (e.g. "*How many times do you usually wake up during a night's sleep?*"), early morning awakenings (e.g. "*How often do you wake up spontaneously much earlier than needed (i.e. much earlier than your planned waking time)?*"), perceived light sleep, and subjective perception of non-restorative sleep of each individual (e.g. "*Regardless of its duration, how would you describe your sleep?*"). The scoring of BaSIQS can range from 0 to 28 points, in which higher results correspond to poorer quality of sleep (Gomes et al., 2015). The 7 items of BaSIQS are usually accompanied by an additional set of questions (plus section) that allows us to understand other sleep aspects, such as the amount of sleep or sleep–wake schedules (Gomes et al., 2015).

In its original study, BaSIQS 7 items showed good psychometric properties, with Cronbach's alpha values ranging from .73 and .78, if we take into account the small number of items and minimal redundancy. In the present study, internal consistency coefficients showed a Cronbach's alpha of .77.

Qualitative Questionnaire: Subjective Experiences of Compassion

A subsample of participants responded a qualitative questionnaire integrating a set of questions regarding their subjective experiences of compassion. This self-report qualitative measure aims to understand people's subjective experiences of compassion, regarding the three existing flows in the Compassionate Engagement and Action Scales (CEAS): Self-Compassion (e.g. "*Please describe, in detail, a recent situation in which you felt self-compassion*"), Compassion to Others (e.g. "*Please describe, in detail, a recent situation in which you felt compassion for other people*") and Compassion from Others (e.g. "*Please describe, in detail, a recent situation in which you felt other people's compassion being addressed to you*"). The main focus of the present study is to examine one's subjective experiences of receiving compassion from others.

Data analysis

Taking into account the world's current context due to the covid-19 pandemic, it was not possible to expand the sample data to a larger number of participants. Hence, and given that Compassionate Engagement and Action Scales (CEAS) have already been analyzed through both an exploratory and a confirmatory factor analysis, it was

chosen to only use a confirmatory factor analysis to test the factor structure of the Openness to Compassion Scale.

The factor structure and psychometric properties of the scale were analyzed using SPSS 22.0 version and AMOS 26.0 version (IBM Corp.). After checking for outliers, the normality of the variables was assessed by the values of asymmetry (sk) and kurtosis (ku). No variable values indicated severe violations of the normal distribution (Sk < | 3 | and Ku < | 10 |).

The confirmatory factor analysis on the new Openness to Compassion Scale was conducted using Maximum Likelihood as the estimation method. In line with the original structure of the CEAS scale (Gilbert et al., 2017), the items were estimated to load on two latent first order factors – Engagement and Action – that were, in turn, loaded on a higher order factor: Openness to Compassion. To examine the fitness of the model, the following indices were selected: Normed Chi-Square ($\chi 2/df$), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Goodness of Fit (GFI), Adjusted Goodness of Fit (AGFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Normed Chi-Square adequate fit values range between 5 and 2. CFI, TLI, GFI and AGFI values are indicative of a good fit when ranging from .90 to .95 and a very good fit when values are above .95. The RMSEA indicates good fit when values are below .10 and SRMR when values are above .08 (Hooper et al., 2008). Modification indices were used to improve model fit.

Internal consistency of the Openness to Compassion Scale was examined by the calculation of Cronbach's alphas for each factor and global score. Construct validity was estimated through convergent and divergent validity. Convergent validity was tested using Pearson's correlations between Compassionate Engagement and Action Scales (Self-Compassion, Compassion to Others and Compassion from Others) and the corresponding factors (Engagement and Action) and Compassion Motivation and Action Scales (CMAS), for measuring the same construct as Openness to Compassion Scale. Divergent validity was tested through correlations between the Openness to Compassion Scale and Early Memories of Warmth and Safeness Scale (EMWS), Mattering Index Scale and Social Safeness and Pleasure Scale (SSPS), which measure different (albeit hypothetically positively related) constructs from Openness to Compassion; and the UCLA Loneliness Scale (UCLA), Other As Shamer Scale (OAS-2), Depression Anxiety Stress Scales (EADS-21) and Basic Scale on Insomnia symptoms and Quality of Sleep (BaSIQS), which measure different constructs from

Openness to Compassion Scale, being hypothesized to be negatively correlated with this scale.

Gender differences were explored through an independent samples *t*-test between men and women. Effect size was calculated through a Cohen's *d*, in order to evaluate the strength of the statistical results.

Mediation analyses were conducted using the Process Macro for SPSS. A path analysis was tested to estimate whether the association between early memories of warmth and safeness (Early Memories of Warmth and Safeness Scale) and feelings of social safeness (Social Safeness and Pleasure Scale) would be mediated by one's openness to compassion (Openness to Compassion Scale). Another path model was conducted to estimate whether the negative association between early memories of warmth and safeness and feelings of loneliness (UCLA Loneliness Scale) was mediated by one's openness to compassion. The indirect effects were tested using a non-parametric bootstrapping, according to which the indirect effect is considered statistically significant if the null of 0 does not fall between the lower and upper bond of the 95% confidence interval.

Regarding the qualitative study of participant's subjective experiences of receiving compassion, a thematic analysis of the responses was conducted to determine the main categories that emerged from the participant's response's themes. Categories were organized in major (concerning who was being compassionate towards the subject) and minor (regarding the type of situation that involved receiving compassion from others) themes. Frequencies of categories of these experiences and gender differences were explored. A chi-square test for independence (Pearson's chi-square test) was examined to determine whether there was an association of gender in the categorical variables.

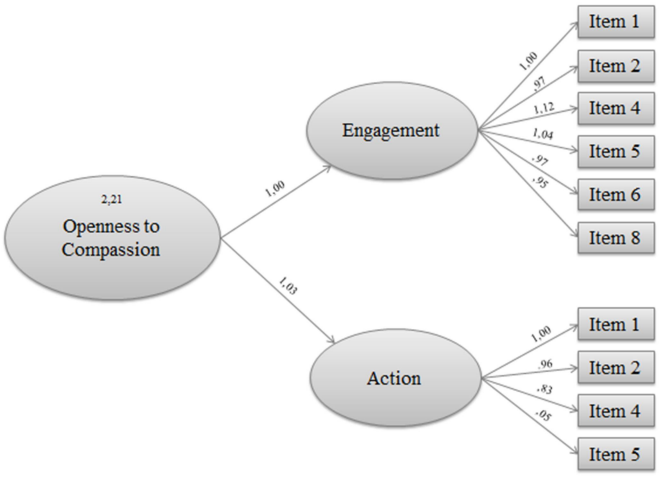
Results

Confirmatory factor analysis of the Openness to Compassion Scale

A confirmatory factor analysis (CFA) was performed estimating two first order factors (Engagement and Action) that significantly loaded on a second order factor corresponding to Openness to Compassion (See figure 1). The CFA revealed an inadequate fit ($\chi 2/df = 14.85$; CFI = .80; TLI = . 744; RMSEA = .22; SRMR = .06). An inspection of the model and local adjustment indicators revealed that the item 5 of Action factor (e. g. "*I am open and moved when others are able to treat me with*

feelings of support, helpfulness and encouragement") presented inappropriate local fit values (Factor Loading = 002; Standardized Regression Weight = .044), confirming the doubtful reliability. Furthermore, the Cronbach's alpha if item deleted showed a significant increase in the Cronbach's alpha from .921 to .944. Given these results, item 5 of Action factor was removed from the model and the same indices were selected.

Figure 1 Confirmatory factor analysis model of the Openness to Compassion Scale



Confirmatory factor analysis of the Openness to Compassion Scale without item 5 of Action factor

In the second confirmatory factor analysis the model of the factor structure of the Openness to Compassion Scale was recalculated without the item 5 of the Action factor. Results showed an improvement in the model fit of the scale ($\chi 2/df = 11.72$; CFI = .88; TLI = .84; GFI = .81; AGFI = .68; RMSEA = .19; SRMR = .05). However, and although these values are sufferable, the model did not have appropriate goodness of fit. Modification indices were examined in order to achieve better values of model fit, and revealed that correlating the error of item 1 (e.g. "*I am open and moved when other people are actively* motivated *to engage and work with my distress when it arises"*) with the error of item 2 (e.g. "*I am open and moved when others* notice *and* are sensitive *to my distressed feelings when they arise in me"*) of the Engagement factor would increase the likelihood of more appropriate values of model fit (M.I. = 160.812).

Confirmatory factor analysis of the Openness to Compassion Scale correlating the errors of items 1 and 2 of Engagement factor

The model was therefore recalculated, estimating a correlation between the errors of items 1 and 2 of Engagement factor. Results showed a Normed Chi-Square

(χ2/df) value of 4.04 indicated good fit. The Comparative Fit Index (CFI = .96) and the Tucker-Lewis Index (TLI = .95) with values above .90 suggested a good fit; the Root Mean Square Error of Approximation of .10 indicated reasonable error and acceptable fit; and the Standardized Root Mean Square Residual with a value of .04 indicated good fit. Not disregarding the values indication of an appropriate model fit, modification indices were again inspected. The errors of items 4 (e.g. "*I am open and moved when others are* emotionally moved *by my distressed feelings"*) and 8 (e.g. "*I am open and moved when others are* accepting, non-critical and non-judgmental *of my feelings of distress"*) of the Engagement factor showed a modification indices value of 14.718.

Confirmatory factor analysis of the Openness to Compassion Scale correlating items 1 and 2 and items 4 with 8 of Engagement factor

The model was recalculated correlating the errors of item 4 and item 8 of the Engagement factor. The goodness of model fit was adequate, with results showing improved model fit indices. Normed Chi-Square (χ2/df) value of 3.42 indicated a better fit. Comparative Fit Index (CFI = .97) and Tucker-Lewis Index (TLI = .96), with values above .95, indicated exceptional fit; the Root Mean Square Error of Approximation of .09 indicated an even more reasonable error and acceptable fit; and the Standardized Root Mean Square Residual with a value of .03 indicated good fit.

Standardized Regression Weights (SRW) (see table 1) ranged from .889 (item 5 of Engagement factor) to .720 (item 1 of Engagement factor) and Squared Multiple Correlations (SMC) ranged from .915 (item 2 of Action factor) to .519 (item 1 of Engagement factor), revealing good values of local adjustments.

Figure 2 Final confirmatory factor analysis model of the Openness to Compassion Scale

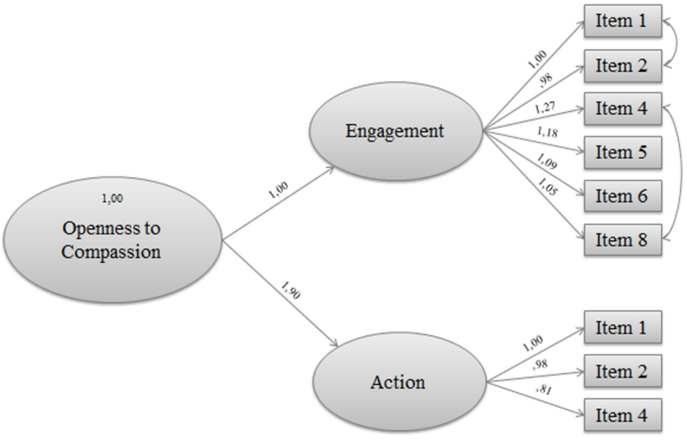


Table 1 Standardized Regression Weights for Openness to Compassion Scale

	Engagement	Action
5. I am open and moved when others *tolerate* my various feelings that are part of my distress.	.889	
4. I am open and moved when others are emotionally moved by my distressed feelings.	.886	
6. I am open and moved when others reflect on and make sense of my feelings of distress.	.863	
2. I am open and moved when others notice and are sensitive to my distressed feelings when they arise in me.	.750	
1. I am open and moved when other people are actively motivated to engage and work with my distress when it arises.	.720	
8. I am open and moved when others are accepting, non-critical and non-judgemental of my feelings of distress.	.766	
2.2. I am open and moved when Others are able to think about and come up with helpful ways for me to cope with my distress.		.957
2.1. I am open and moved when others are able to direct their attention to what is likely to be helpful to me.		.924
2.4. I am open and moved when others are able to take the actions and do the things that will be helpful to me.		.789

Reliability

Regarding internal consistency, Openness to Compassion Scale showed a Cronbach's alpha of .944. As for the factors Engagement and Action, Cronbach's alphas of.923 and .917 were found, respectively. Due to the previous elimination of the item 5 of the Action factor, the scale reliability would not increase by the removal of any item, confirming the relevance of all items to the internal consistency of the scale. Item total correlations ranged from .708 (item 8 of Engagement factor) to .844 (item 2 of Action factor), revealing moderate to strong correlations. Skewness and kurtosis values indicated a non-severe violation of the normal distribution, ranging from -1.124 to -.585 and -.033 to 1.528, respectively.

Descriptive Statistics

Descriptive statistics for the scales and subscales used in the present study are given in table 2. Mean, standard deviation, skewness and kurtosis for the items and total factors of the Openness to Compassion Scale are displayed in table 3.

Table 2 Descriptive Statistics of the Scale

	Mean	Std. Deviation	Skewness	Kurtosis
CEAS Openness to Compassion	68,61	13,67	-,671	,730
CEAS Openness to Compassion (Engagement)	45,10	9,55	-,642	,461
CEAS Openness to Compassion (Action)	23,51	4,80	-,873	1,027
CEAS Self Compassion	60,96	11,04	-,406	,204
CEAS Self Compassion (Engagement)	39,95	7,36	-,378	,596
CEAS Self Compassion (Action)	21,01	5,04	-,510	-,217
CEAS Compassion to Others	78,40	12,31	-1,132	3,573
CEAS Compassion to Others (Engagement)	46,26	7,78	-,915	2,415
CEAS Compassion to Others (Action)	32,14	5,26	-1,222	3,563
CEAS Compassion from Others	62,97	16,36	-,684	,251
CEAS Compassion from Others (Engagement)	36,71	9,71	-,502	,013
CEAS Compassion from Others (Action)	26,26	7,36	-,806	,442
CMAS (Compassion to Others)	60,09	12,64	-,850	1,326
CMAS (Self Compassion)	89,78	17,86	-,590	,838
Social Safeness and Pleasure Scale	41,64	9,10	-,374	-,447
Early Memories of Warmth and Safeness Scale	60,21	20,02	-,518	-,763
Mattering Index Scale	125,98	19,58	-,353	-,578
Others As Shamer	10,33	6,94	,838	,654
Loneliness UCLA	33,63	9,83	,382	-,785
Depression Anxiety Stress Scales (Depression)	5,55	4,92	1,061	,889
Depression Anxiety Stress Scales (Anxiety)	4,86	4,96	1,230	1,061
Depression Anxiety Stress Scales (Stress)	8,13	5,16	,592	-,140
Basic Scale on Insomnia Symptoms and Quality of Sleep	17,17	4,53	,540	,363

Key: CEAS: Compassionate Engagement and Action Scales; **CMAS**: Compassion Motivation and Action Scales

Table 3 Descriptive Statistics of Openness to Compassion Items of Engagement and Action factors

	Mean	Std. Deviation	Skewness	Kurtosis
Engagement				
1. I am open and moved when other people are actively *motivated* to engage and work with my distress when it arises.	7,57	1,93	-,934	,605
2. I am open and moved when others *notice* and *are sensitive* to my distressed feelings when they arise in me.	7,67	1,82	-1,124	1,528
4. I am open and moved when others are *emotionally moved* by my distressed feelings.	7,18	1,99	-,615	-,033
5. I am open and moved when others *tolerate* my various feelings that are part of my distress.	7,32	1,83	-,585	-,023
6. I am open and moved when others *reflect on* and *make sense* of my feelings of distress.	7,68	1,75	-,808	,541
8. I am open and moved when others are *accepting, non-critical and non-judgemental* of my feelings of distress.	7,67	1,90	-,912	,827
Action				
2.1. I am open and moved when others are able to direct their *attention* to what is likely to be helpful to me.	7,74	1,79	-1,024	1,114
2.2. I am open and moved when others are able to *think about* and come up with helpful ways for me to cope with my distress.	7,86	1,69	-,965	1,149
2.4. I am open and moved when others are able to take the *actions* and do the things that will be helpful to me.	7,91	1,70	-1,060	1,431

Gender Differences

Independent samples *t*-test (see table 4) revealed significant differences between women ($N = 176$) and men ($N = 75$) in the Openness to Compassion Scale ($p < .050$) and

in the Engagement factor. Results showed that women scored significantly higher than men on the total of the Openness to Compassion Scale and on the Engagement factor. There were no significant differences between genders regarding the Action factor.

Cohen's *d* $(M_2 - M_1) / SD_{pooled}$) was examined to evaluate the effect size of these results. Cohen's *d* revealed a medium effect size for the global scale (*d* = .42) and the Engagement factor (*d* = .47); and a small effect size for the Action factor (*d* = .28).

Table 4 Gender Differences: Means, Standard Deviations, and *t* test *p* values for *women* (N= 176) and *men* (N = 35)

Self-report variables	**Men (N = 35) Mean**	**Women (N = 176) Mean**	***t* test *p***
Global Scale (Openness to Compassion)	62.63	68.77	.017*
Engagement Factor	40.60	45.32	.008*
Action Factor	22.03	23.45	.120

* p value is significant at the 0.05 level (2-tailed)

Construct validity

To evaluate convergent validity of Openness to Compassion scale, Pearson's correlation coefficients were calculated between these new scale, the three scales of Compassionate Engagement and Action Scales (CEAS), their factors Engagement and Action, and Compassion Motivation and Action Scales (CMAS). Results (see table 5) showed that openness to compassion was positively but weakly correlated with self-compassion; moderately correlated with compassion from others; and strongly correlated with compassion to others. Regarding the factors of each scale (Engagement and Action) results showed positive correlations between the factors of Openness to Compassion scale and the corresponding factors on the other CEAS scales. On Compassion Motivation and Action Scale (CMAS) results showed a positive and weak correlation with Openness to Compassion scale.

Divergent validity results (see table 6) showed that Openness to Compassion scale was positively and weakly correlated with memories of warmth and safeness in childhood, the perception of mattering to others and feelings of social safeness and

connectedness to others. In contrast, Pearson's correlations coefficients examined with the inversely related scales showed that Openness to Compassion scale is negative and weakly correlated with feelings of loneliness. No statically significant correlations were found between openness to compassion and external shame, psychopathology indicators (depression, anxiety and stress) and difficulties in the sleep patterns.

Table 5 Convergent validity: Correlations between Openness to Compassion scale and other compassion measurement scales

	CEAS OC Total	CEAS OC Engagement	CEAS OC Action	CEAS SC Total	CEAS SC Engagement	CEAS SC Action	CEAS CtO Total	CEAS CtO Engagement	CEAS CtO Action	CEAS CfO Total	CEAS CfO Engagement	CES CfO Action	CMAS
CEAS OC Total		.98**	.90**	.18**	.18**	.14*	.64**	.62**	.57**	.40**	.39**	.37**	.20**
CEAS OC (Engagement)	.98**		.79**	.17**	.18**	.11	.61**	.60**	.53**	.38**	.38**	.36**	.20**
CEAS OC (Action)	.90**	.79**		.18**	.16*	.17**	.60**	.57**	.57**	.37**	.36**	.34**	.18**
CEAS SC Total	.18**	.18**	.18**		.93**	.84**	.19**	.18**	.18**	.25**	.26**	.21**	.41**
CEAS SC (Engagement)	.18**	.18**	.16**	.93**		.58**	.18**	.19**	.15**	.20**	.22**	.16**	.39**
CEAS SC (Action)	.14*	.11	.17**	.84**	.57**		.15*	.12*	.18**	.25**	.25**	.22**	.32**
CEAS CtO	.64**	.61**	.60**	.19**	.18**	.15*		.96**	.92**	.31**	.31**	.29**	.22**
CEAS CtO (Engagement)	.62**	.60**	.57**	.18**	.19**	.12*	.96**		.77**	.30**	.30**	.26**	.19**
CEAS CtO (Action)	.57**	.53**	.57**	.18**	.15**	.18**	.92**	.77**		.30**	.28**	.29**	.23**
CEAS CfO Total	.40**	.39**	.37**	.25**	.20**	.25**	.31**	.30**	.30**		.97**	.95**	.27**
CEAS CfO (Engagement)	.39**	.38**	.37**	.26**	.22**	.25**	.31**	.30**	.28**	.97**		.83**	.23**
CEAS CfO (Action)	.37**	.36**	.34**	.21**	.16**	.22**	.29**	.26**	.29**	.95**	.83**		.30**
CMAS	.20**	.20**	.18**	.41**	.39**	.32**	.22**	.19**	.23**	.27**	.23**	.29**	

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Key: CEAS: Compassionate Engagement and Action Scales; **CEAS OC:** CEAS Openness to Compassion Scale; **CEAS SC:** CEAS Self Compassion Scale; **CEAS CtO:** CEAS Compassion to Others Scale; **CEAS CfO:** CEAS Compassion from Others Scale; **CMAS**: Compassion Motivation and Action Scales

Table 6 Divergent validity: Correlations between Openness to Compassion scale and other compassion measurement scales.

	CEAS OC Total	CEAS OC Engagement	CEAS OC Action	EMWS	Mattering Index	SSPS	UCLA	OAS	EADS Depression	EADS Anxiety	EADS Stress	BASIQS
CEAS OC Total		.98**	.90**	.19**	.30**	.27**	-.31**	-.10	.02	.06	.10	-.11
CEAS OC Engagement	.98**		.80**	.17**	.29**	.27**	-.31**	-.09	.01	.04	.08	-.10
CEAS OC Action	.90**	.73**		.21**	.29**	.23**	-.28**	-.10	.04	.07	.12*	-.12*
EMWS	.20**	.17**	.21**		.39**	.49**	-.46**	-.34**	-.23**	-.19**	-24**	-.10
Mattering Index	.30**	.29**	.28**	.39**		.59**	-.72**	-.65**	-.40**	-.31**	-.29**	-.15*
SSPS	.27**	.27**	.23**	.49**	.59**		-.77**	-.52**	-.38**	-.24**	-.30**	-.26**
UCLA	-.31	-.31**	-.28	-.46**	-.72**	-.77**		.60**	.43**	.28**	.32**	.22**
OAS	-.10	-.09	-.10	-.34**	-.65**	-.52**	.59**		.53**	.43**	.47**	.25**
EADS Depression	.02	.01	.04	-.23**	-.40**	-.38**	.43**	.53**		.79**	.76**	.28**
EADS Anxiety	.06	.04	.07	-.19**	-.31**	-.24**	.28**	.43**	.79**		.79**	.28**
EADS Stress	.10	.08	.12*	-.24**	-.29**	-.30**	.32**	.47**	.76**	.80**		.26**
BASIQS	-.11	-.10	-.12*	-.10	-.15*	-.26**	.22**	.25**	.28**	.28**	.26**	

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Key: **CEAS**: Compassionate Engagement and Action Scales; **CEAS OC:** CEAS Openness to Compassion Scale; **EMWS:** Early Memories of Warmth and Safeness Scale; **Mattering Index**: Mattering Index Scale; **SSPS:** Social Safeness and Pleasure Scale; **UCLA**: UCLA Loneliness Scale; **OAS**: Other As Shamer Scale; **EADS**: Depression Anxiety and Stress Scales; **BASIQS:** Basic Scale on Insomnia Symptoms and Quality of Sleep.

Mediation analysis

Correlation analysis

Prior to the testing of the mediation models, correlation analyses were explored to understand the relationship between the constructs. Early memories of warmth and safeness were positively correlated with both feelings of social safeness and connectedness to others and openness to compassion; and negatively correlated with feelings of loneliness. Similarly, openness to compassion was positively correlated with feelings of social safeness and connectedness to others and negatively correlated with feelings of loneliness.

Model 1 - Mediator effect of openness to compassion on the relationship between early memories of warmth and safeness and feelings of social safeness and connectedness

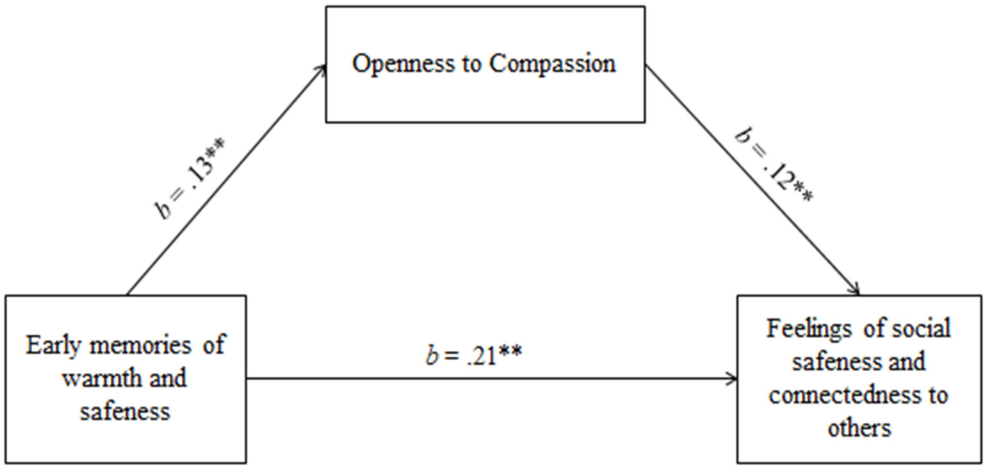
The results of the first mediation model are presented in figure 3. The mediation analysis revealed that openness to compassion partially mediated the impact of early memories of warmth and safeness on feelings of social safeness and connectedness. The direct effect of early memories of warmth and safeness on feelings of social safeness and connectedness (b = .21, *s.e.* = .0236; $p < .001$) and on openness to compassion (b = .13, *s.e.* = .0399; p = .001) was positive and significant. The direct effect of openness to compassion on feelings of social safeness and connectedness (b = .12; *s.e.* = .0345; $p <$ .001) was also positive and significant. Bootstrapping method confirmed the significance of the indirect effect of early memories of warmth and safeness on feelings of social safeness and connectedness mediated by openness to compassion (95%CI = .0075, .0734). This indicates that openness to compassion partially mediates the impact of early memories of warmth and safeness on feelings of social safeness and connectedness to others.

Model 2 - Mediator effect of openness to compassion on the relationship between early memories of warmth and safeness and feelings of loneliness

The results on the second mediation model are presented in figure 4. Regarding mediation analysis, results showed that openness to compassion partially mediated the impact of early memories of warmth and safeness on feelings of loneliness. The direct effect of early memories of warmth and safeness on openness to compassion was positive and significant (b = .13; *s.e.* = .0400; p = .001) and on feelings of loneliness was negative and significant (b = -.20; *s.e.* = .0256; $p <$ .001). The direct effect of

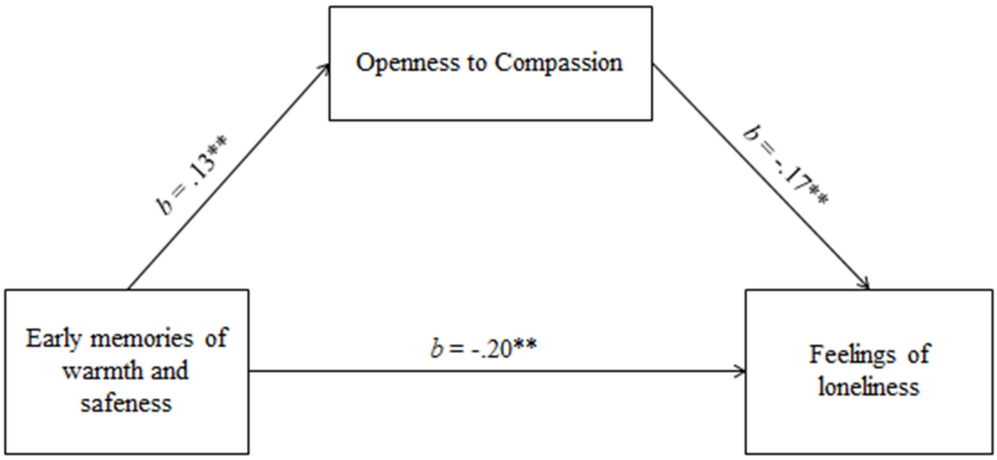
openness to compassion on feelings of loneliness was also negative and significant (b = -.17; *s.e.* = .0375; p< .001). Bootstrapping method confirmed the significance of the indirect effect of early memories of warmth and safeness on feelings of loneliness mediated by openness to compassion (95%CI = -.0819, -.0134). This indicates that openness to compassion partially mediates the impact of early memories of warmth and safeness on feelings of loneliness.

Figure 3 Standardized regression coefficients for the relationship between early memories of warmth and safeness and feelings of social safeness and connectedness to others as mediated by openness to compassion.



**Correlation is significant at the 0.01 level (2-tailed)

Figure 4 Standardized regression coefficients for the relationship between early memories of warmth and safeness and feelings of loneliness as mediated by openness to compassion.



**Correlation is significant at the 0.01 level (2-tailed)

Qualitative analysis: Subjective Experiences of Compassion

Thematic analysis on subjective experiences of compassion

The thematic analysis on the participant's qualitative responses originated 7 major categories and 12 minor categories.

Major categories were organized by *who* was being compassionate towards oneself: compassion from a friend, compassion from a family member, compassion from a colleague, compassion from the partner, compassion from strangers and compassion in situations of grief, included for being a repeated theme during the thematic analysis. Minor categories were organized using the same major categories, but aggregating *situations* associated to the experiences of receiving compassion: academic problems, personal problems, health problems and economic problems (see testimonial examples displayed in table 7). For both major and minor classifications, a category of "not compassion situation" responses was considered.

Frequencies of types of receiving compassion experiences

Results of frequencies of major categories showed that people described more often past experiences of receiving compassion from friends (39.29%) and less frequently receiving compassion from their partner (5.36%) or colleagues (2.98%). 23.21% of participants reported situations that were not considered compassion, integrating the category of "not compassion". Regarding minor categories, people reported more often having received compassion in relation to personal problems (31.55%) and less often having received compassion in relation to economic problems (.60%) or health problems (.60%). Percentages of the categories are displayed in pie charts 1 and 2.

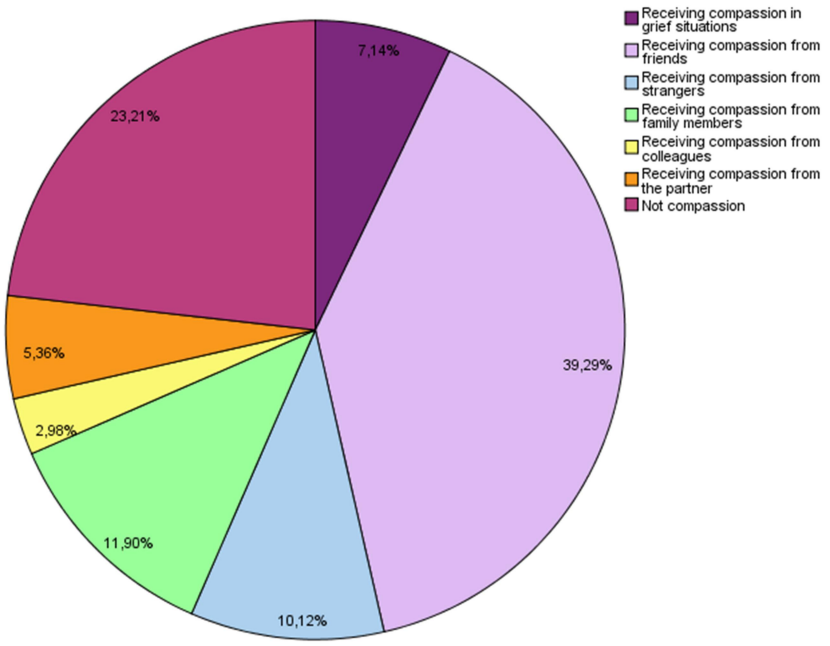
Gender differences were examined through a Chi-Square Test of Independence for the subjective experiences of compassion (see pie charts 3 and 4 in appendices 1 and 2). Both women (w) and men (m) reported more often experiences of receiving compassion from friends (w = 41.9%; m = 33.3%) and in situations of personal problems (w = 32.3%; m = 25%). Results showed that men did not report receiving compassion by the partner, colleagues or strangers.

The Chi-Square Test of Independence revealed that there were no statistically significant association between gender and the subjective experiences of receiving compassion in major categories ($\chi^{(1)} = 6.53$; $p = .366$) or in minor categories ($\chi^{(1)} = 7.94$; $p = .540$).

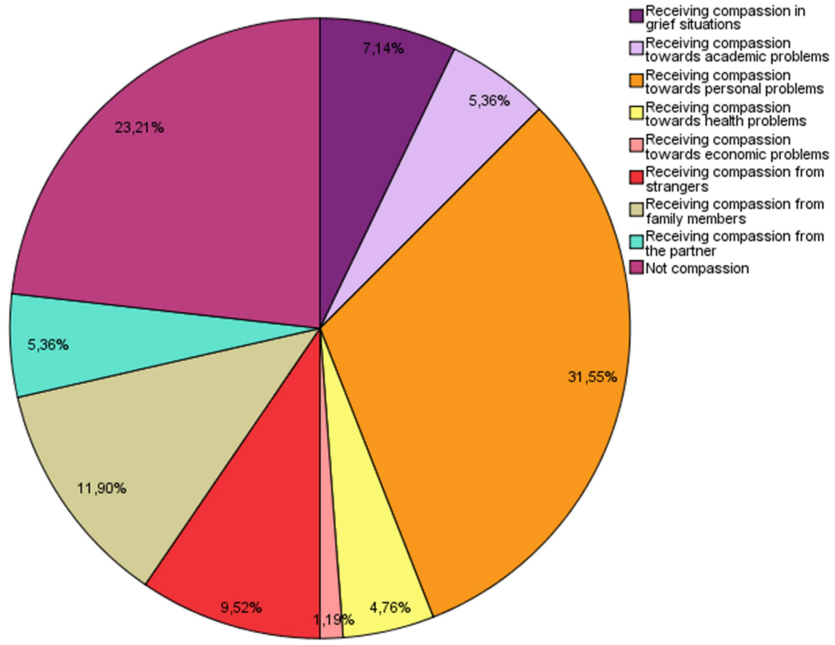
Table 7 Testimonial Examples on Major and Minor Categories of Subjective Experiences of Receiving Compassion

Major Categories	**Testimonial Examples**
Compassion from a friend	*I felt compassion from other people when I broke off my latest relationship. My friends were tolerant, sooth me and were there for me. They gave me attention, love, support, motivation and strength when I needed it, and made me get through my pain in a less painful way. I felt less alone.*
Compassion from a family member	*Recently I was very rude and verbally violent to my parents, motived with feelings of frustration and anger. My parents were wise enough to know that they were not the reason from my anguish. They received my behavior and talked to me about it to understand what I was feeling. I felt really understood, accepted, loved and important to them. I was speechless by their attitude.*
Compassion from a colleague	*A recent situation when I felt compassion being directed towards myself was when I was with a lot of difficulties finishing a school paper and my colleges offered themselves to help me with it.*
Compassion from the partner	*I remember one day I was very tired both physic and psychologically. My baby was months old, didn't sleep and cried a lot. My boyfriend got home from home and realized I was not okay. From that day on, he made everything he could for me to have time to rest. He took the baby out so I could sleep. It's good to feel comprehended, cared for and respected. It made me feel like I am not alone.*
Compassion from strangers	*When I entered college I felt really alone and was having difficulties in integrating myself in the previously formed social groups. Some older girl tried to help me by creating social situations with my classmates so I could make new friends.*
Compassion in situations of grief	*When my father died a lot of people tried to help me with affection and care. I felt good for the feelings that these people arose in me. It felt really good.*
Minor Categories	
Academic problems	*Recently I felt compassion directed towards myself when I was stressing over the exams and paper work and I felt like no one really understood me. I had two friends that took me out of the house, helped me and soothed me.*
Personal problems	*When I went through a difficult phase in my marriage, my family welcomed me in their home for a few months and gave me comfort when I most needed it.*
Health problems	*I was talking to my friend about my sleep difficulties. I told her that as much as I wanted to, I always self-sabotage and stop going to therapy. My friend decided that she would accompany me and encourage me to go to the psychology sessions. It was a suggestion that I wasn't expecting but made me happy.*
Economic problems	*The situation that I am going to describe is related to the fact that a friend wanted to lend me money for the organization of a trip. When this hypothesis arose and despite having refused, it felt like an act of kindness, friendship and concern. I realized I was being supported without directly being aware of it. It made me feel loved.*
Not Compassion	*People showed me empathy when I was in a bad mood and they understood me.*

Pie Chart 1 Major categories on receiving compassion from others



Pie Chart 2 Minor categories on receiving compassion from others



Discussion

There is a substantial amount of literature that demonstrates the role of one's *openness* as a personality trait, widely known in the five factor model, and often

referred to as openness to experience (DeYoung et al., 2013). In fact, Robbins (2003) recognized a common ground in joy, gratitude and compassion: the *will to openness*. Whether it is considered a personality trait or a way of living, openness has been considered one's tendency to be sensitive, aware of their own feelings and open to emotional responses. However, and despite the growing advances in studies of compassion, there are no studies on *openness to compassion* and no measurement, to our knowledge, of one's *openness to receive compassion* from others. For these reasons, the development and examination of the psychometric qualities of Openness to Compassion Scale, as a new brief self-report measure of the Compassionate Engagement and Action Scales (CEAS), may be considered a relevant contribution to the current state of art.

The Openness to Compassion Scale items were designed to assess one's openness to receive compassion from others, rather than measuring the perception of receiving compassion from others. Openness to Compassion factor structure was tested through a confirmatory factor analysis with a model that settled on two first order factors (Engagement and Action) that, in turn, loaded on a higher order factor (Openness to Compassion). The CFA results showed the items of Engagement factor were relevant to measure one's *engagement* and *motivation* to receive compassion from others, and the items of Action factor measured one's *openness to receive compassionate actions*. The final factor model revealed acceptable model fit indices and results on reliability confirmed the adequacy of the items, from moderate to high, through item-total correlations. Openness to Compassion global scale and its two factors revealed good internal consistencies, similar to those found in the examination of the psychometric qualities of the three other flows of compassion (Self-Compassion, Compassion to Others and Compassion from Others) in CEAS original study (Gilbert et al., 2017).

Findings on convergent validity corroborated our hypothesis that Openness to Compassion global scale is positively correlated with other measures that assess *similar* constructs. Regarding the relationship between Openness to Compassion and other foci of compassion, Engagement and Actions factors of the Openness to Compassion scale are positively correlated with each corresponding factor on the three flows of compassion. Openness to Compassion was *weakly* correlated with self-compassion, *moderately* correlated with compassion from others and *strongly* correlated with compassion to others. Besides, results on convergent validity also showed that

Openness to Compassion was *weakly* correlated with Compassion Motivation and Action scales (CMAS). Weak correlations show that although being a flow of compassion, openness to compassion differs from self-compassion foci and compassion motivation and action scales, by being measurements of different mechanisms of compassion. In contrast, the moderate to strong correlations may imply that openness to compassion, compassion from others and compassion to others measure more approximate dimensions of compassion. In either case, openness to compassion *positive* association with the prior mentioned scales show that people who scored higher in openness to compassion from others, tend to score higher in self-compassion, compassion to others, compassion from others, and in compassion to others and self-compassion motivation and actions. In the CEAS original study (see Gilbert et al., 2017), moderate to strong correlations were found between the three flows of compassion, corroborating the good correlation indices found in the present study. These results support concurrent validity for representing statistically significant positive correlations; however, future investigations should take in consideration the correlations between openness to compassion and the others flows of compassion, in order to corroborate the associations found between the scales.

Regarding discriminant validity, our findings supported the hypothesis that Openness to Compassion global scale was *positively* correlated with other measures that assess *different*, even though related, constructs, as it is the case of early memories of warmth and safeness, feelings of social safeness and connectedness, and the perception of mattering to others. In fact, Pearson's correlations coefficients showed that openness to compassion was *positively* and *weakly* correlated with the above mentioned constructs. These results mean that, notwithstanding the fact that the scales measure different constructs, people who scored higher in openness to compassion from others tend to score higher in recalled memories of warmth and safeness, feelings of social connectedness and the perception of mattering to others. Divergent validity results also revealed that Openness to Compassion global scale was *negatively* correlated with another measure that assesses a *different* construct, as it is the case of feelings of loneliness. This result indicates that people who are more open to the compassion from others report less feelings of loneliness. No statistical significant correlations were found between openness to compassion and external shame, quality of sleep or psychopathological symptoms such as depression, anxiety and stress. These results seem to be partly in line with prior research on other flows of compassion, since self-

compassion is widely associated with more positive and less negative feelings (Akin, 2010; Gilbert et al., 2017; Neff, 2009) and to have a direct effect on feelings of loneliness (Akin, 2010). Nevertheless, the absence of significant correlations between openness to compassion and depression, anxiety and stress seem to deviate from the current literature on other flows of compassion, especially in receiving compassion from others. In fact, in a study conducted to examine the correlations of different foci of compassion with depression, anxiety and stress scales (Steindl et al., 2018), was found that receiving compassion from others were negatively correlated with feelings of depression, anxiety and stress, while simultaneously being associated with positive affect and early memories of warmth and safeness. This means that individuals that receive more compassion from others, tend to have less feelings of depression, anxiety and stress, more recalled memories of warmth and safeness and more feelings of positive affect (Neff, 2003b; Steindl et al., 2018). These findings not only are consistent with the conceptualization of Neff (2003a) that sees compassion has a protective factor in depression, as they are on the view of Gilbert et al. (2017) and Neff (2003b) that considered compassion as highly associated with feelings of well-being and life satisfaction. However, a question may remain: if receiving compassion is significantly associated with psychopathological symptoms, why did openness to compassion present no correlation with depression, anxiety and stress? First, openness to compassion and receiving compassion from others are two distinct constructs: one's openness to compassion can only be useful in protecting against psychopathological symptoms if people in their lives are actually compassionate towards them in the face of suffering. Therefore, openness to compassion might not be directly related to psychopathology symptoms since this relationship might be moderated by the compassion one actually receives from others. Also, openness to compassion is conceptualized as being rooted in the affiliative and soothing system, being developed from early affiliative relationships, while psychopathology and fears of compassion are seen as rooted in the threat system, with fears and resistances to compassion being related to the perception of compassion as threatening. Future studies should seek to replicate these results, and explore the moderator effect of receiving compassion from others on the association between openness to compassion and psychopathology, in order to understand if openness to compassion is related to psychopathological symptoms in those people who receive compassion from others.

Findings on gender differences showed that women presented higher levels of openness to compassion from others in the Openness to Compassion global scale and its Engagement factor, although there were no statistically significant differences between women and men in the Action factor. Cohen's *d* test revealed a medium effect size for the statistically significant results, meaning that gender differences between women and men were not due to trivial chance. These findings are not in line with the results on Compassion from Others scale on the original CEAS study (see Gilbert et al., 2017), where no significant gender differences were found in receiving compassion from others. However, studies on self-compassion have showed that women report less self-compassion than men, and tend to be more self-critical (Neff, 2003a; Raes, 2010), and consequently present greater vulnerability to depressive symptoms (Neff, 2003a; Nolen-Hoeksema, 1999; Raes, 2010). The results found in the present study must be carefully considered, since they can be influenced by the nonequivalent distribution of men and women in the present sample. However, these findings suggest that women may actually be more open and engaged to receive compassion from others than men.

Furthermore, this study aimed at exploring the mediator effect of openness to compassion on the relationship between early memories of warmth and safeness and social safeness and connectedness to others. In the first mediation model results showed that openness to compassion partially mediated the relationship between early memories of warmth and safeness and feelings of social safeness and connectedness to others. These findings support the notion that openness to compassion may be a protective underlying mechanism that facilitates the understanding of the relationship between these two constructs. This means that early memories of warmth and safeness predict one's ability to be open to compassion from others, and consequently more feelings of social safeness and connectedness to others. However, partial mediation means that, although there is a mediator effect between the variables, there is also a direct relationship between early memories of warmth and safeness and social safeness and connectedness to others. As a prior study has showed (Richter, 2009) feelings of social safeness and connectedness to others have their roots in early memories of warmth and safeness. Furthermore, early affiliative memories and feelings of social safeness have been known to be negatively associated with external shame and fears of receiving compassion from others (Kelly & Dupasquier, 2016; Matos et al., 2017b; Silva et al., 2018). In fact, the Social Mentality Theory (Gilbert, 2005) postulates that traumatic experiences in childhood may affect the perception of social interactions as threatening,

and consequently perceive social relationships as less soothing and safe. Contrariwise, early experiences of warmth and safeness predict feelings of safeness in social relationships, and consequently allow the individual to engage with and act on receiving compassion from others (Kelly & Dupasquier, 2016; Steindl et al., 2018). In fact, this might be because early memories of warmth and safeness are associated with the affiliative soothing affect regulation system, that when stimulated during early life, promotes a sense of social safeness and the ability to regulate negative emotions, through affiliative states (e.g. compassion) (Gilbert, 2009; Matos et al., 2015a; Matos et al., 2017b). Findings on the present study may be an important complement to the current literature, since they indicate that the impact of either early memories of warmth and safeness or memories of threat can be mediated by openness to receive compassion from others that, in turn, attenuate in what extent individuals feel safe and connected to others.

Additionally, this study also aimed at exploring the mediator effect of openness to compassion on the association between early memories of warmth and safeness and feelings of loneliness. Results showed that openness to compassion partially mediated the relationship between early memories of warmth and safeness and feelings of loneliness, suggesting that being open to receive compassion from others may have a protective effect against feelings of social isolation and loneliness. This means that early memories of warmth and safeness lead to more willingness to be open to receive compassion from others, and consequently, fewer tendencies to feel lonely (Matos et al., 2015a). Despite the nonexistent literature on openness to compassion from others, effects of self-compassion on loneliness and depressive symptoms have been studied over the years (Neff, 2003b; Neff, 2009; Shapira & Mongrain, 2010; Steindl et al., 2018). Findings on the self-compassion have shown that people who are more compassionate towards themselves, experience less depressive symptoms and feelings of loneliness (Neff, 2003b; Neff, 2009; Raes, 2010; Shapira & Mongrain, 2010). The same results were obtained in Steindl et al. (2018) study about the mediating role of self-compassion in early memories of warmth and safeness and depressive symptoms. Mediation analysis results showed that traumatic experiences in early childhood predicted depressive symptoms, which partially decreased with self-compassion. Neff (2003b) also found that self-judgment is positively correlated with feelings of isolation, while self-kindness is positively correlated with the same measure. In contrast, one's early memories of feeling safe and being cared for as a child predict less depressive

symptoms (Matos et al., 2013; Richter et al., 2009), when the individual presented more compassion towards himself (Steindl et al., 2018). Regardless of previous studies, our results bring a new perspective to the existing literature by suggesting that early memories of warmth and safeness negative relationship with feelings of loneliness can be mediated from one's openness to receive compassion from others. This means that memories of warmth and safeness in childhood may lead to more openness to receive compassion from others and, consequently, less feelings of loneliness.

Qualitative data analysis aimed at enhancing the understanding of the subjective experience of receiving compassion from others. This qualitative self-report questionnaire assessing subjective experiences of compassion may be an important addition to the contemporary literature, since to the best of our knowledge there are no studies that have explored subjective experiences of compassion using other methodologies than self-report quantitative data. The subjective experiences of receiving compassion more often described were experiences related to receiving compassion from *friends*, *family members* and *strangers.* Regarding the type of situations, participants more often described receiving compassion from others in regard to *personal problems*, in *grief situations* and towards *health problems*. Distribution of women and men in this subsample of participants (84% women and 16% men) is noticeable in the minor categories, since women reported a greater variety of situations than men. Additionally, a significant number of participants reported situations that did *not correspond to actual compassion experiences* (23.21%), which may be due to the existing common difficulty in distinguishing compassion from other cognitive abilities, such as empathy.

With the exception of some aspects that need careful consideration, Openness to Compassion Scale may constitute a relevant contribution to the assessment of a different dimension of compassion and an important addition to the Compassionate Engagement and Action Scales, allowing not only for the evaluation of one's openness to receive compassion from others, but also including the assessment of its dimensions of engagement and action. Furthermore, the Openness to Compassion Scale proved to be a valid and reliable measure that may be used in clinical practice and research on the role of compassion in human psychological development and functioning.

Limitations

Some methodological limitations should be taken into account. Due to the pandemic that has affected the world in the last few months, it was not possible to proceed with the collection of data to assess temporal stability through test-retest initially planned. The non-even distribution of participants between the two genders constitutes another limitation of the study. Especially in gender differences, it is important to account for the significant discrepancy between the number of woman (*N*= 176) and men (*N* = 35). Moreover, there were 72 missings in gender that were not included when gender differences were analyzed. Therefore, future research should further explore these gender differences in larger samples and gender equivalent samples, and examine the factor structure of Openness to Compassion Scale and its gender invariance in larger size equivalent samples of both genders.

Furthermore, we strongly recommend future studies to replicate the CFA analysis, particularly the results that suggest the removal of item 5 of the Action factor, in order to understand whether it remains a problematic item in a different sample or if it is a particular feature of the present sample.

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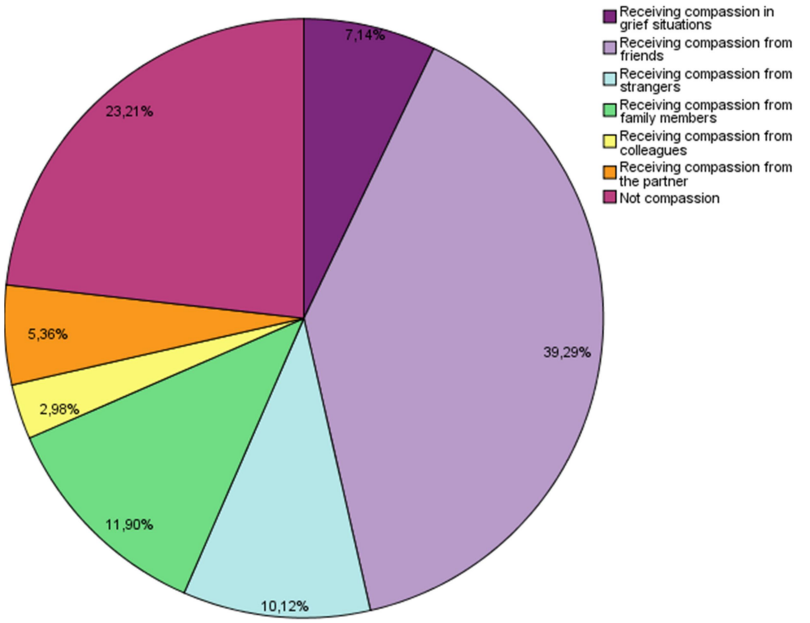
Supplementary Material

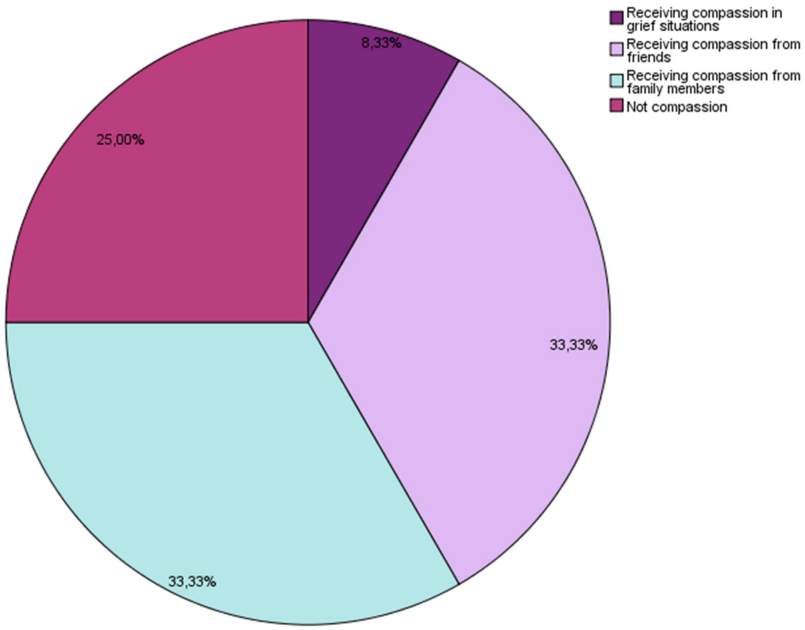
Supplementary Material 1

Pie Chart 3 Gender differences in major categories on receiving compassion from others

Women



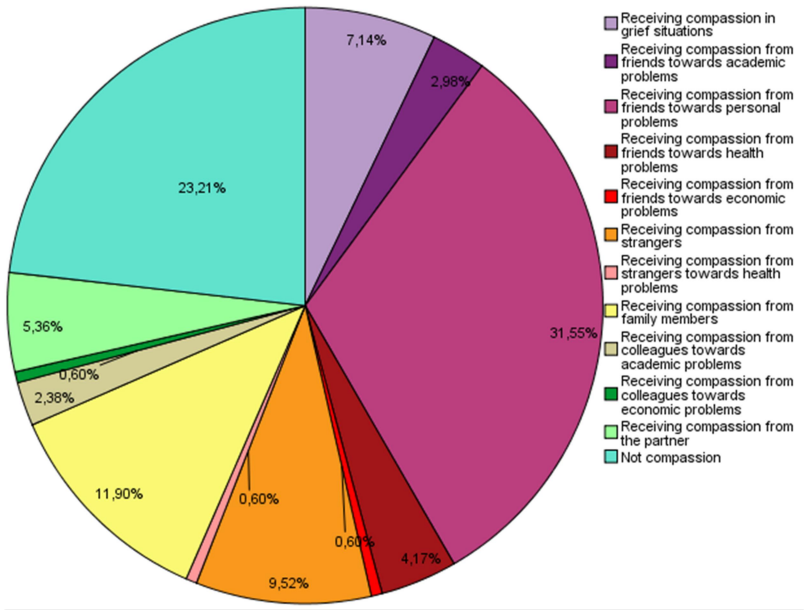
Men



Supplementary Material 2

Pie Chart 4 Gender differences in minor categories on receiving compassion from others

Women



Men