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Obstacles to social safeness in women with chronic pain: the role of fears of compassion

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Obstacles to social safeness in women with chronic pain: the role of fears of compassion

Abstract

The current study examines the mediating role of fears of compassion (for others, from others, for self) between self-compassion and social safeness in a sample of Portuguese women with chronic pain (CP). The recruitment (N = 107) was conducted online and participants responded to a set of self-report questionnaires aimed to assess socio-demographic and medical data, as well as self-compassion, fears of compassion, social safeness, pain intensity, pain-related functional impairment and depressive symptoms. A theory-driven mediational model was built in which fears of compassion mediate the relationship between self-compassion and social safeness, while controlling for pain intensity, functional impairment and depressive symptoms. This was tested using the SPSS macro PROCESS. Results suggest that the relationship between self-compassion and social safeness was mediated by fears of receiving compassion from others, but not by fears of giving compassion to others nor fears of self-compassion. These results yield relevant information to better understand how women with CP experience social safeness and connectedness, with promising clinical implications.

Keywords: chronic pain; self-compassion; fears of compassion; social safeness.

Introduction

Social bonding is a crucial part of humans′ phylogenetic history (e.g. Dunbar, 1998, 2003), with an especially important role in brain maturation in infancy, and experience and processing of emotions (e.g. Grossman & Johnson, 2007). The establishment of social relationships is operated by neuropeptides such as oxytocin (e.g. Meyer-Lindenberg, Domes, Kirsch, & Heinrichs, 2011). Oxytocin has been associated with feelings of contentment and well-being (see Ishak, Kahloon, & Fakhry, 2011), and with an increase in pain tolerance (e.g. Paloyelis, Krahé, Maltezos, Williams, Howard, & Fotopoulou, 2016). Indeed, the association between pain and social relationships has been previously explored in pain research (e.g. Cano & Williams, 2010). However, the majority of studies have focused either on social support or on the impact of pain on social and family functioning (e.g. Dueñas, Ojeda, Salazar, Mico, & Failde, 2016; Hengstebeck, Roskos, Breejen, & Arnetz, 2017; Turk, Fillingim, Ohrbach, & Patel, 2016), and less on the subjective feeling of being safe in and connected to one′s social environment. In fact, some have suggested that social support is not *per se* a sufficient condition to promote effective adaptation to pain, and that individual factors should be taken into consideration (Sturgeon & Zautra, 2016).

Experiencing constant or sporadic pain during a long period of time (Merksey & Bogduk, 1994) has great deleterious effect on quality of life, occupational capacity and social functioning (e.g. Börsbo, Peolsson, & Gerdle, 2009; Breivik, Eisenberg, & O'Brien, 2013; Garbi, Hortense, Gomez, Silva, Castanho, & Sousa, 2014), but also on how safe one perceives the social context. Individuals with chronic pain (CP) may be particularly sensitive to perceived social rejection due to fears of being disbelieved or thought of as unproductive or a burden (Smith & Osborn, 2007), which may give rise to perceptions of being ignored, embarrassed or devalued by others (Arnold, Crofford, Mease, Burgess, Palmer, Abetz, & Martin, 2008). In a large national probability sample, one study found that being safe in and connected to one′s social relationships is a stronger predictor of mental health in one year than the other way around (Saeri, Cruwys, Barlow, Stronge, Sibley, 2017). This raises the overall question of whether difficulties in feeling safe in social relationships result unidirectionally from illness-related impairments, or can also arise from other attachment-related difficulties prior to the onset of the illness. In the context of CP, there

seems to be evidence for the relationship between attachment and CP (see Romeo, Tesio, Castelnuovo, & Castelli, 2017). For example, one study found that people suffering from CP presented disorganized attachment in a two-fold rate when compared to individuals from the general population (Davies, Macfarlane, McBeth, Morriss, & Dickens, 2009).

Self-compassion has been recently a topic of interest in pain research (Purdie & Morley, 2016). The rationale behind this growing trend is based on both theoretical and empirical grounds. Self-compassion is positively correlated with well-being (see Zessin, Dickhäuser, & Garbade, 2015), and is negatively associated with anxiety and depressive symptoms (see MacBeth & Gumley, 2012), which are common in CP (Elliot, Renier, & Palcher, 2003; Ohayon & Schatzberg, 2010; Jobski, Luque-Ramos, Albrecht, & Hoffmann, 2017). Indeed, it seems that self-compassion is a relevant psychological process in CP (Vowles, Sowden, & Ashworth, 2014), associated with fewer symptoms of emotional distress (e.g. Costa & Pinto-Gouveia, 2013), less negative affect and pain disability (Wren et al., 2012), and moderates the relationship between nefarious cognitive processes and depressive symptoms in CP (Carvalho, Pinto-Gouveia, Gillanders, & Castilho, 2018). Although the studies of self-compassion in CP have the limitations of cross-sectional designs, longitudinal studies outside CP research have found that self-compassion predicts more life satisfaction, less negative affect (Hope, Koestner, & Milyavskaya, 2014) and less depressive symptoms (Krieger, Berger, & Holtfort, 2016; López, Sanderman, & Schroevers, 2018). Additionally, the particular relevance of self-compassion in CP stems from the theoretical claim that it is an attachment-based output rooted in our evolutionary history. Self-compassion has been described as the ability to be sensitive to our own suffering, as well as a motivation to alleviate it in a kind and soothing manner (Dalai Lama, 2001; Neff, 2003; Gilbert, 2005), and it seems to be part of a soothing-affiliative affect regulation system that is thought to result from the mammalian evolution of attachment (Gilbert, 2005, 2010, 2014). The ability to be self-compassionate seems to stem from a set of continued experiences where one is the recipient of compassion from others (e.g. parents who acknowledge a child´s personal struggles and who help them regulate negative emotions in a warm, caring and soothing manner) (Cozolino, 2007; Mikulincer & Shaver, 2007). It has been suggested that the mechanism behind this relationship (i.e. receiving compassion from others and the ability to be self-compassionate) is through the development of feelings of being safe in and connected to one′s social environments (Kelly & Dupasquier, 2016). Indeed, it seems that social relationships play a crucial role in helping regulate physiological and emotional processes (Cacioppo, Berntson, Sheridan, & McClintock, 2000). Also

noteworthy is the fact that self-compassion, by being rooted in an affiliative system, is related to physiological phenomena that are relevant in pain regulation: self-compassion is associated with vagally-mediated heart-rate variability (Rockliff, Gilbert, McEwan, Lightman, & Glover, 2008), and with oxytocin-endorphin systems (Rockliff, Karl, McEwan, Gilbert, Matos, & Gilbert, 2011) that seem to be involved in pain modulation (e.g. Tracy, Georgiou-Karistianis, Gibson, & Giummarra, 2015). Although affiliation outputs seem to have a role in pain regulation (Eisenberger, Master, Inagaki, Taylor, Shirinyan, Lieberman, & Naliboff, 2011), and although self-compassion predicts the experience of feeling safe and connected in social relationships (Akin & Akin, 2015) and higher psychological functioning (Kelly, Zuroff, Leybman, & Gilbert, 2012), to our knowledge the relationship between self-compassion and social safeness has never been tested in CP.

Although humans are hardwired to engage in social bonding (Brown & Brown, 2015; Seppälä, Simon-Thomas, Brown, Worline, Cameron, & Doty, 2017), some people may have difficulties in experiencing positive feelings of affiliation (Gilbert, McEwan, Matos, & Rivis, 2011). These difficulties are potentially problematic given that affiliation is a major regulator of negative emotions (Depue & Morrone-Strupinsky, 2005; Gilbert, 2005, 2010, 2014). Indeed, it seems that some individuals fear feelings of compassion and/or react to compassion with strong negative emotions (Gilbert et al., 2011; Miron, Seligowsky, Boykin, & Orcutt, 2016). These negative feelings when encountering compassion can be of different flow and directions: one may experience fear of exhibiting compassion towards others (*fear of compassion for others*), perhaps due to a perception of providing support and warmth as a sign of submissiveness or an overall unease with emotions of distress. One may also experience fears of receiving compassion (*fear of compassion from others*) if feelings of being cared for and soothed are unfamiliar, and/or if these feelings elicit traumatic memories of being shamed, criticized and put down in times when emotional support was needed. Also, one may have fears of experiencing self-compassion (*fear of compassion for self*), due to an absence of memories of experiencing compassion from others (Gilbert, 2010), making it difficult to cultivate these feelings towards the self (Pauley & McPherson, 2010). Fears of compassion have been recently studied, and results show its association with several negative psychological and health outputs. Research shows that fears of compassion are associated with post-traumatic stress (Miron et al., 2016; Miron, Sherrill, & Orcutt, 2015) and depressive symptoms in college students (Gilbert, McEwan, Gibbons, Chotai, Duarte, & Matos, 2012). Also, fears of compassion correlate with self-criticism and depressive symptoms in individuals with depression (Gilbert, McEwan,

Catarino, & Baião, 2014). Interestingly, a study with individuals suffering from moderate to severe depression found that fears of compassion from others were the best predictors of adult attachment (Gilbert, McEwan, Catarino, Baião, & Palmeira, 2014). Also, there is evidence that lower self-compassion and higher fear of self-compassion is related to shame and disordered eating (Kelly, Carter, Zuroff, & Borairi, 2013). There is also evidence that having fears of receiving compassion from others, as well as from the self, is a mediator between memories of feeling warmth and safeness in childhood, and depressive symptoms (Matos, Duarte, & Pinto-Gouveia, 2017). These results show the need to better understand the mechanisms through which patients experience difficulties in generating self-compassion in harsh times, thus decreasing their ability to feel safe and connected within their social environments. Specifically in CP, to our knowledge, it has never been studied how fears of compassion may play a part in the relationship between self-compassion and feeling safe in patients′ social contexts. Indeed, to our knowledge, only two studies have explored fears of compassion in chronic illnesses. One found that being afraid of receiving compassion from others significantly predicted depressive symptoms in a sample of non-metastatic breast cancer patients (Trindade, Ferreira, Borrego, Ponte, Carvalho, & Pinto-Gouveia, 2018). Another study found that fear of compassion from others mediated the impact of shame related to the illness on the quality of social relationships in college students (Trindade, Duarte, Ferreira, Coutinho, & Pinto-Gouveia, 2018).

Built on previous literature, the current study sets out to explore the relationship between self-compassion, fears of compassion and social safeness and pleasure. We expect that higher levels of self-compassion are associated with less fears of compassion (from others, for others, and from self) and less social safeness and pleasure. Also, we expect that pain intensity, functional impairment and depressive symptoms are negatively correlated with self-compassion and social safeness and pleasure, and positively correlated with fears of compassion, Finally, we hypothesize that the relationship between self-compassion and social safeness is mediated by fears of compassion from others and fears of self-compassion, while controlling for pain intensity, functional impairment and depressive symptoms.

Method

Participants

A sample of N = 107 women living with CP was recruited online via three Portuguese nationwide CP associations that have accepted to collaborate and advertise the study with their mailing list. Participants responded to a set of self-report online questionnaires, through a platform (Limesurvey)

situated to the university server. Questionnaires assessed 1) socio-demographic data, 2) medical information, and 3) psychological variables exclusively related to the study. The principal researcher of the study was the only one with knowledge of the private username and password to access private content within the platform. Inclusion criteria: a) having chronic musculoskeletal pain diagnosis(es); b) age ≥ 18 years; c) ability to read Portuguese; d) access to an online device. No compensation was given for participating in the study.

Participants had an average age of 50.84 years (SD = 11.20), were single (*n* = 15; 14%), married (*n* = 63; 58.9%), divorced (*n* = 22; 20.6%) or widowed (*n* = 7; 6.5%). Also, the majority of participants had a bachelors′ degree (*n* = 45; 42.1%) or a high-school degree (*n* = 33; 30.8%), and some had completed 6th grade (*n* = 1; 0.9%), 9th grade (*n* = 10; 9.3%), a Post-grad (*n* = 7; 6.5%), a masters´ degree (*n* = 10; 9.3%) or a doctors´ degree (*n* = 1; 0.9%). The majority were currently employed (*n* = 75; 70.1%), and the majority of those who were not (*n* = 32; 29.9%) were absent from working for more than 5 years (*n* = 20; 62.5%). In terms of CP diagnoses, all participants reported their diagnoses were conducted by a medical doctor, such as the rheumatologist (*n* = 83; 77.6%), general practitioner (*n* = 17; 15.9%), psychiatrist (*n* = 7; 6.5%), and/or other clinician (*n* = 21; 19.6%). Diagnoses included fibromyalgia (*n* = 92; 86%), arthrosis (*n* = 12; 11.2%), lower back pain (*n* = 12; 11.2%), rheumatoid arthritis (*n* = 11; 10.3%), and/or other CP conditions (*n* = 16; 15%). The majority of the sample presented one CP diagnosis (*n* = 82; 76.6%), while some reported having two (*n* = 9; 8.5%), three (*n* = 9; 8.5%), four (*n* = 5; 4.7%) and five CP diagnoses (*n* = 1; 0.9%). Participants reported having CP for more than 10 years (*n* = 65; 60.7%), between 5 and 10 years (*n* = 28; 26.2%), or between 1 and 5 years (*n* = 14; 13.1%). The majority was taking CP-related medication (*n* = 91; 85%) and presented other chronic medical conditions (*n* = 50; 56.1%). Also, some participants reported not having had psychotherapy ever (*n* = 38; 35.5%), others reported not having in the last 12 months (*n* = 38; 35.5%), while others had psychotherapy in the last 12 months (*n* = 31; 29%).

Procedures

The current study is part of a larger three-wave study that aims to explore the role of a set of psychological processes in the etiology of depressive symptoms in CP. The Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra has approved the study before data collection.

The research team has contacted five nationwide CP associations, explained the study and invited them to advertise the study through Facebook and/or mailing lists. These are non-lucrative associations for CP patients. Medical or psychological treatment is not provided by these associations. These are strictly led by and directed to CP patients, where they can get legal advisement, information on the latest scientific advances in CP treatment and contact information of where to get the appropriate clinical help. Three CP associations agreed to advertise the study. The current study was *a priori* designed to use data from the last wave of the larger study, to explore the specific research question here reported. The current study was conducted in a sample of N = 107 women with CP.

After accessing the online protocol, participants were provided with information related to the goals of the study and its target population. Participants were informed that participation was voluntary, and that collected data would be confidential. Finally, the research team informed that collected data would be used strictly within the current research. Participants provided consent by ticking on the "I accept to participate" button.

Measures

Self-Compassion Scale-Short form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011; Castilho, Pinto-Gouveia, & Duarte, 2015) is the short version of SCS, composed of 12-items. This instrument measures self-compassion (e.g. "I try to see my failings as part of the human condition") with a 5-point scale (1 = almost never; to 5 = almost always). There is an ongoing discussion on the factor structure of the SCS, which seems to be fueled by the theoretical underpinnings of different self-compassion conceptualizations. Some authors suggest a structure of one or six factors (total score, or the six subscales: self-kindness, common humanity, mindfulness, self-judgment, isolation and over-identification) (Neff, 2003). Others have found theoretical and psychometric arguments for a two-factor structure: one that measures a *self-compassionate* attitude (sum of self-kindness, common humanity and mindfulness) and one measuring a *self-critical* attitude (sum of self-judgment, isolation and over-identification) (Muris & Petrocchi, 2017). The current study follows the latter two factor structure. The current study found good values of internal consistency (α = .82).

Fears of Compassion Scale (FCS**;** Gilbert et al., 2011; Matos, Pinto-Gouveia, Duarte, & Simões, 2016) has three scales that measure different dimensions of fears of compassion: 10 items that measure

fears of expressing *compassion for others* (e.g., "Being too compassionate makes people soft and easy to take advantage of"), 13 items that assess fears of receiving *compassion from others* (e.g., "If people are kind I feel they are getting too close"), and 15 items that measure *fears of self-compassion* (e.g. "If I really think about being kind and gentle with myself it makes me sad"). The constructs are measured in 5-point scales (0 = Don't agree at all; 4 = Completely agree). The current study found good internal consistencies for fears of compassion towards others (α = .90), from others (α = .90) and for self (α = .91).

Social Safeness and Pleasure Scale (SSPS; Gilbert et al., 2009; Pinto-Gouveia, Matos, & Dinis, 2008) is an 11-items measure of social safeness, i.e. the degree to which a person experiences feelings of belonging, acceptance, connectedness and warmth from others (e.g., "I feel a sense of warmth in my relationships with people"). It measures the construct using a scale of 5 points (0 = almost never; 4 = almost all the time), and the current study found good internal consistency (α = 94).

Depression, Anxiety and Stress Scale-21 (DASS-21; Lovibond and Lovibond 1995; Pais-Ribeiro et al. 2004) has 21-items that measure depression, anxiety and stress symptoms. It uses a 4-point scale (0 = did not apply to me at all; 3 = applied to me very much or most of the time) to assess symptomatology. Given the evidence of the co-occurrence of depressive symptoms in CP, this study will only focus on depressive symptoms. This study found a good internal consistency (α = .90) for the depression subscale.

Numeric Pain Rating Scale (NPRS; Hartrick, Kovan, & Shapiro, 2003; Ferreira-Valente, Pais-Ribeiro, & Jensen, 2011) measures pain intensity using a scale of 11 points (0 = ''No pain''; 10 = ''Worst imaginable pain''). Respondents should choose the number that best depicts the intensity of their pain. In the current study, it was created a variable of "average pain intensity" with three items: 1) current level of pain; 2) highest level of pain in the last 24h; 3) lowest level of pain experienced in the last 24h. This study found an internal consistency of α = .89.

Work and Social Adjustment Scale (WSAS; Mundt, Marks, Shear, & Greist, 2002) is a 5-item measure of functional impairment. It can be used in several medical problems by mentioning the specific illness in study. In this study, the instructions were primed for chronic pain. WSAS assesses five domains: work, home management, social leisure activities, private leisure activities, and family and other relationships. It measures the construct in a 9-point scale (0 = no impairment; 8 = very severe

impairment). Higher scores indicate higher levels of functional impairment. The current study found values that indicate good internal consistency: α = .92

Data analysis

Statistical analyses were conducted using SPSS (v. 21, SPSS, Chicago, IL, USA), and the PROCESS computation tool for SPSS (Hayes, 2013). Demographic and medical data were examined through descriptive analyses. Mean and standard deviation scores of all variables in study were also examined through descriptive analyses.

Correlation analysis was conducted to explore the relationships between pain intensity, functional impairment, depressive symptoms, self-compassion, the three fears of compassion (for others, from others, and for self), and social safeness and pleasure. The examination of the magnitude of associations followed Cohen´s (1988) guidelines: small if close to *r* close to .10, medium if close to .30, and large if higher than .50.

To test the mediation hypothesis of the relationship between self-compassion and social safeness and pleasure through fears of compassion (while controlling for depressive symptoms, pain intensity and functional impairment as covariates), a model was built and estimated in PROCESS (Model 4). The indirect effect was examined using a bootstrap procedure with 5000 resamples, with a 90% confidence interval (CI). The indirect effect is considered significant when zero is not contained in the interval between the lower and upper CI (Hayes, 2013; Kline, 2005). In order to attain the power of the indirect effect, an online calculator was used (https://davidakenny.shinyapps.io/MedPower/), assuming an N = 107 and an α = .05. It is generally accepted that power should be at least 80% in order to detect the effect when there is one (Cohen, 1992).

Additionally, and in order to examine the specific contribution of fears of compassion on the explanation of social safeness and pleasure, a hierarchical regression in three steps were conducted: in step one, a simple linear regression where self-compassion predicts social safeness and pleasure was conducted; in step two, the three fears of compassion model were added to the model; finally, in step three the covariates (depressive symptoms, pain intensity, and functional impairment) were added to the model.

Finally, in order to further control the limitations of the cross-sectional design of this study, an alternative inverted model was tested, in which social safeness predicts self-compassion through fears of compassion. The circularity inherent in the relationship between the psychological processes here tested

(i.e. a reduced ability in being self-compassion may result in experiencing difficulties in feeling safe and connected within social relationships; as well as feeling difficulties in social safeness may, in turn, result in reduced self-compassion), as well as the inability to draw conclusions on causality in cross-sectional studies, makes it crucial to test both the hypothesized model and an alternative one where the relationships are inverted.

Results

Preliminary Data Analyses

Skewness and kurtosis were acceptable (SK<|3| and Ku<|8-10|) (Tabachnick & Fidell, 2014) and suggested our data did not present severe violations of normality. No outliers were detected. Also, given that incomplete questionnaires were not allowed by the online platform, no missing data were found.

Descriptive and correlation analyses

Table 1 depicts results from descriptive analysis, in which mean values of all variables were similar to those reported in studies of CP. It is worth noting that mean scores of depressive symptoms were below the clinically significant ones. Nevertheless, descriptive results show that our sample presented levels of normal (n = 57; 53.3%), mild (n = 12; 11.2%), moderate (n = 21; 19.6%), severe (n = 8; 7.5%) and extremely severe (n = 9; 8.4%) depressive symptoms.

----------Insert table 1 around here ----------

Results from correlational analyses show that pain intensity was significantly correlated with functional impairment and with fears of self-compassion, and not with the other variables in study. Interestingly, functional impairment was significantly associated with all variables, except for fears of self-compassion. Additionally, depressive symptoms were significantly associate with all variables in study: negatively correlated with self-compassion and social safeness and pleasure, and positively correlated with the three subscales of fears of compassion (for others, from others and for self). Also, self-compassion presented positive associations with social safeness and pleasure, and negative associations with the three subscales of fears of compassion. Also expectedly, results show a negative association between all three subscales of fears of compassion, with a stronger association with fears of compassion from others. Finally, all three subscales of fears of compassion were correlated in the expected direction. These results did not change significantly when conducted a partial correlation analysis while controlling for the number of CP diagnoses.

Mediation analysis

A mediational model was built in order to test if fears of compassion (for others, from others and for self) mediated the relationship between self-compassion and social safeness and pleasure, while controlling for the effect of depressive symptoms, pain intensity and functional impairment. Results of the overall model are depicted in Table 2.

---------- insert Table 2 around here ----------

The model explained 43% of the variance in social safeness and pleasure, and results show that social safeness and pleasure in the overall model was significantly predicted by fears of compassion from other (b = -.53, p < .001, 90%CI = -.742/-.309), depressive symptoms (b = -.65, p = .014, 90%CI = -1.073/-.218) and pain intensity (b = 1.15, p = .016, 90%CI = .373/1.936), but not by fears of compassion for other (b = .16, p = .167, 90%CI = -.031/.356), for self (b = -.05, p = .570, 90%CI = -.207/.101), self-compassion (b = .03, p = .872, 90%CI = -.307/.374) nor functional impairment (b = -.11, p = .314, 90%CI = -.281/.068). Indirect effect results show that the relationship between self-compassion and social safeness and pleasure was mediated by fears of compassion from others (b = .16, 90%CI = .019/.370), but not by fears of compassion for others (b = -.04, 90%CI = -.182/.007) nor by compassion for self (b = .01, 90%CI = -.010/.093). The power of the indirect effect was calculated using an online app, assuming N = 107 and α = .05, and results showed a power of 86.8%. Finally, the direct effect of self-compassion on social safeness and pleasure was non-significant (b = .03, p = .872, 90%CI = -.307/.374).

Additionally, in order to examine the specific change in the explanation of the variance of social safeness and pleasure, we have conducted multiple hierarchical regression in three steps: in step 1, a simple linear regression of self-compassion predicting social safeness and pleasures was conducted (R^2 = 10.4%). Then, in step 2 all three subscales of fears of compassion were added to the model and increased 23.5% of the explanation of social safeness (R^2 = 33.9%). Finally, in order to control for the effect of depressive symptoms, pain intensity and functional impairment, these variables were added to the model, which added 9.4% of the explanation of social safeness (R^2 = 43.3%).

Finally, given the cross-sectional design of this study, and the potential circularity of the relationship between these psychological processes, we have tested an inverted mediational model in which self-compassion is predicted by social safeness and pleasure and mediated by fears of self-compassion, while controlling for depressive symptoms, pain intensity and functional impairment. Results showed that the overall model explained 31.1% of self-compassion, but none of the predictors were significant, except for depressive symptoms (b = -.44, p = .001, 90%CI = -.647/-.241), and neither

fears of compassion for others (b = .00, 90%CI = -.004/.028), fears of compassion from others (b = .02, 90%CI = -.018/.066), nor fears of compassion for self (b = -.00, 90%CI = -.021/.017) significantly mediated this association.

Discussion

The current study is based on previous research that suggests the benefits of self-compassion in CP (e.g. Purdie & Morley, 2016), and adds to the literature by exploring the role of fears of compassion in the relationship between self-compassion and feelings of safeness and pleasure in the social context of women with CP.

Results from correlation analyses showed that pain intensity was not significantly correlated with depressive symptoms, self-compassion, social safeness, nor fears of compassion, but was significantly associated with fears of self-compassion. Contrarily, functional impairment was significantly correlated with all variables in the study, except for fears of self-compassion. These results seem to be in line with previous research pointing out that pain intensity and depression present weak (e.g. Garbi et al., 2014) or even non-significant associations (Carvalho et al., 2018), and that pain disability is more strongly related to positive psychological outcomes (Börsbo et al., 2009). More interestingly, these results seem to point out that while pain intensity correlates with fears of being self-compassionate in difficult situations, functional impairment does not. One possible way of reading these results is through the potential misunderstandings and beliefs about what compassion really is. Participants might have viewed self-compassion as self-indulgence, self-pity or as an attitude of resignation (Gilbert, 2005, 2010) towards their pain intensity, thus viewing it as a counterproductive experience that would lead to less effective attempts to control and diminish their pain. Indeed, when we look at the items assessing fears of self-compassion (e.g. "I feel that if I am too compassionate with myself, bad things will happen", "I worry that if I start to develop compassion for myself I will become too dependent on it") (Gilbert et al., 2014), it seems to corroborate that those with higher pain intensity might view self-compassion as an obstacle to self-manage their pain experience. Also, correlation results corroborate previous research that shows that self-compassion is negatively correlated with depressive symptoms (e.g. MacBeth & Gumley, 2012), including in CP samples (e.g. Costa & Pinto-Gouveia, 2013; Carvalho et al, 2018). It is possible to make sense of this association through different angles: self-compassion seems to encompass the ability to see personal suffering as a common human experience (e.g. Neff, 2003), diminishing feelings of isolation (Neff, 2016). Also, it seems that self-compassion entails a motivational orientation to action (Gilbert et

al., 2017) that may be related to behavioral activation and reduction of demobilization and cognitive biases and rumination (Gilbert, 2007) present in depression. In a different yet complementary level of analysis, it seems that self-compassion is related to oxytocin systems (e.g. Rockliff et al., 2011), which are associated with feelings of contentment and well-being (Ishak et al., 2011) that counteract depressive symptoms. Also, our results suggest that being self-compassionate is positively correlated with feeling safe and experiencing pleasure in social relationships, while both self-compassion and social safeness were negatively associated with fears of compassion. Although to our knowledge these results are new in CP, they seem to corroborate existing studies in non-CP samples. For example, studies show that the ability to experience self-compassion is negatively connected to fearing feelings of compassion (Gilbert et al., 2011), and that being able to be self-compassionate is associated with attachment-related memories of being safe in social contexts (Matos et al., 2017) and with current feelings of social safeness (Kelly & Dupasquier, 2016). Interestingly, it is worth mentioning that self-compassion was more strongly correlated with fears of receiving compassion from others, than with fears of being self-compassionate. This seems to echo the theoretical (Gilbert, 2005, 2010, 2014) and empirical data (Cozolino, 2007; Mikulincer & Shaver, 2007) suggestion that the ability to cultivate self-compassion is related to the experience of being cared for and soothed by others, and that when this does not occur it may produce blocks in the ability to receive compassion from others (Gilbert et al., 2014).

A mediational model was tested in order to examine the role of fears of compassion in the relationship between self-compassion and social safeness. As expected, results seem to indicate that being able to be compassionate towards oneself is related to having less fears of being the recipient of warm and soothing affiliative emotions from others (fears of compassion from others), which in turn is related to experiencing more pleasurable emotions and feelings of safeness in social situations (e.g. contentedness and connectedness). This was not related to participants′ level of pain intensity, nor pain-related functional impairment, nor the presence of depressive symptoms, as these were controlled for by introducing them in the model as covariates. This seems to echo the theoretical rationale that self-compassion is rooted in attachment-related systems (Gilbert, 2005, 2010). In specific to the context of CP, one possible reading of these results follows the interconnectedness of the affect-regulation systems (Gilbert, 2014). The ability to respond to CP-related setbacks and difficulties in a warm and soothing manner (self-compassion) may counteract the threat-related cognitive and emotional outputs that surround the experience of receiving care from others (e.g. fear of being a burden, not worthy of affection nor

kindness from others), which in turn result in more feelings of safeness and connectedness in social relationships and environments. Interestingly, fears of compassion from others were the sole mediator. Although the non-significant mediation of fears of compassion for others was not a surprise, given that previous studies have found consistent evidence for its poor predictive effect (e.g. Gilbert et al., 2014; Gilbert et al., 2012), the non-significance of fears of self-compassion was not expected. This seems to suggest that when considering social contexts, the relevance of self-compassion in producing social safeness and connectedness in CP patients has less to do with fears of being self-compassionate, and more to decreasing blocks in receiving care and kindness from others. It is also worthy to consider that other psychological processes might operate these relationships and provide a more complex picture of the role of fears of self-compassion. It may be the case that self-criticism, external shame and social rank factors (Gilbert, 2005) are relevant psychological processes that may moderate this mediation. Previous literature suggests that high self-critical individuals are resistant to produce self-compassionate images (Gilbert & Procter, 2006). It may be the case that the mediational effect of fears of self-compassion is conditional to participants´ levels of self-criticism. Future studies should explore this hypothesis.

Finally, although our model building followed a theory-driven hypothesis, the cross-sectional nature of this study, as well as the potential circularity of these psychological processes, prompted us to test an alternative model in which social safeness predicted self-compassion through fears of self-compassion. Results showed all three fears of compassion did not significantly mediate this relationship, which seems to corroborate our hypothesized model.

Several limitations should be taken into consideration when interpreting these results. Firstly, the cross-sectional design does not allow for conclusions on causality. Although we have tested an alternative model, this is not sufficient to guarantee the causality underlying our hypothesized model. Future studies should consider longitudinal and/or experimental designs in order to do so. Also, our sample was composed solely of women, which prevents us from generalizing these results to other genders. Also, our sample presented a relatively high level of education. Future studies should consider this variable and test whether these results are replicated in a sample of women with lower levels of education. Additionally, the sample was of Portuguese women, which should prevent us from generalizing results into other nationalities. Cross-cultural studies with multi-group analyses should be conducted in order to explore model (in)variance and test differences between these variables in different countries. Finally, the tested model is an incomplete one, as other relevant psychological processes might play a role. Specifically,

future studies should examine the role of different forms of self-criticism and explore if the models in invariant in patients with different levels of self-criticism. This may yield crucial information that would inform psychological interventions with CP patients high in self-criticism.

Although these results align with other studies that explore fears of compassion from others and negative outputs (e.g. Gilbert et al., 2014; Kelly et al., 2013) and with social safeness (e.g. Matos et al., 2017), to our knowledge this study is the first one that explores fears of compassion as mediators of the relationship between self-compassion and social safeness, and the first to examine the role of fears of compassion in CP. This study provides particularly relevant information for psychological interventions in CP as it adds a new layer of understanding of the role of social relationships and social connectedness in CP. Specifically, the current study presents data that potentially argues for the importance of patient-focused phenomena such as their ability to receive support, care and kindness from others, and the importance of feeling safe in their social environments, when addressing social environments in CP. The current study provides evidence for the importance of promoting a sense of safeness and connectedness in CP patients, and particularly for the necessity of reducing fears of receiving care and compassion from others through the cultivation of self-compassion. This study suggests that psychological interventions in CP that focus on promoting engagement and connection to social relationships may benefit from including exercises that increase self-compassion (e.g. compassionate self, safe place, loving-kindness meditation), as well as practices that facilitate the flow of compassion (e.g. flows of compassion exercises, particularly compassion flowing into oneself).

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Table 1
Mean (M), Standard Deviation (SD) Range of scores (Min-Max) of all variables, and Pearson moment correlation between all variables in the total sample (N = 107)

				Correlations						
Measures	*M*	*SD*	Min-Max	1	2	3	4	5	6	7
1.Pain intensity	5.19	1.96	0.67-9.67	-	-	-	-	-	-	-
2.Functional impairment	22.11	9.55	4.00-40.00	.41***	-	-	-	-	-	-
3.Depressive symptoms	5.31	4.64	0.00-17.00	.15	.48***	-	-	-	-	-
4.Self-compassion	19.27	4.66	8.00-30.00	-.16	-.24*	-.53***	-	-	-	-
5.Social safeness and pleasure	39.20	10.47	11.00-55.00	.05	-.23*	-.54***	.32***	-	-	-
6.Fear of compassion for others	17.71	8.99	0.00-40.00	.02	.21*	.44***	-.32***	-.32***	-	-

7.Fear of compassion from others	12.51	9.22	0.00-38.00	.14	.21*	.56***	-.41***	-.57***	.62***	-
8.Fear of compassion for self	13.15	11.47	0.00-45.00	.20*	.17	.50***	-.34***	-.40***	.48***	.61***

Note. *** p <.001; ** p < .01; * p < .05
For a correlation, the effect size is the absolute value of r (Cohen, 1992).

Table 2
Regression coeficients and model summary information (N = 107)

	b	SE	*p*	LLCI	ULCI	R^2	F	*p*
Self-compassion	.03	.21	.872	-.31	.37			
Fear of compassion for others	.16	.12	.167	-.03	.36			

Fear of compassion from others	-.53	.13	<. 001	-.74	-.31	.43	10.78	.000
Fear of compassion for self	-.05	.09	.570	-.21	.10			
Depressive symptoms	-.65	.26	.014	-1.07	-.22			
Functional impairment	-.11	.11	.31	-.28	.07			
Pain intensity	1.15	.47	.02	.37	1.94			