

Correlates of psychological inflexibility mediate the relation between alexithymic traits and positive emotions

Abstract

Objectives: There is growing interest in the construct of alexithymia as it has been increasingly associated with a wide range of psychological disorders, in clinical samples and general population. In comparison to studies relating alexithymia and negative affectivity, there has been a scarcity of studies exploring such links with positive emotions. This study aims to explore the association between alexithymia and several discrete positive emotions, and to explore the mediating role of psychological inflexibility-related processes (decentering, experiential avoidance, resistance to feelings of compassion, and self-compassion) in such association.

Method and Participants: Using a cross-sectional design, 331 participants were recruited from the general population ($M_{age} = 33.31$, $SD = 14.03$; 97 male and 234 female). Participants were asked to fill out the Portuguese version of the questionnaires.

Results: Correlational analyses showed that alexithymia was associated with decreased positive emotions. Intraclass correlations suggested that people presenting with alexithymia showed lower positive emotional granularity, particularly regarding high arousal emotions. Alexithymia was also negatively associated with decentering and self-compassion, and positively associated with experiential avoidance and resistance to feelings of compassion. Mediation analyses showed that all variables were significant mediators of the association between alexithymia and positive emotions,

Conclusions: Psychological inflexibility and related constructs may be important targets for therapeutic interventions with individuals with increased alexithymia.

Introduction

People differ in how hard they find it to identify and describe emotions. Sifneos (1973) termed this personality trait ‘alexithymia’, which literally means having no words for feelings. The alexithymia construct has been refined more specifically into a difficulty in identifying feelings, difficulty in describing feelings, and a tendency for externally oriented thinking, or a concentration on external, often fantastic, events (e.g., Taylor, 2000; Taylor & Bagby, 2004). Alexithymia is not a discrete psychiatric diagnosis, and it has been observed in a vast array of psychiatric disorders and mental health problems, and in the general population (e.g., Fewen, Dozois, Neufeld, & Lanius, 2008; Kokkonen et al., 2001; Nowakowski, McFarlane, & Cassin, 2013; Roh, Kim, & Kim, 2011). Alexithymia has also been identified as a negative predictor of medical outcomes (e.g., Porcelli et al., 2003) and interferes with psychotherapy (e.g., Ogrodniczuk, Piper, & Joyce, 2011).

Corresponding with negative affectivity, alexithymia is strongly correlated to neuroticism, negative emotions, depression, and anxiety (e.g., Ciarrochi, Heaven, & Supavadeeprasit, 2014; De Gucht, Fontaine, & Fischler, 2004; Foran & O’Leary, 2013; Taylor & Bagby, 2004; Li, Zhang, Guo, & Zhang, 2015; Marchesi, Bertoni, Cantoni, & Maggini, 2005).

Although Bagby and Taylor (1997) suggested that individuals with alexithymia have, at the same time, limited experiences of positive emotions, such as joy, happiness and love, there has been little research on this association. The few existent studies, however, point to an association between alexithymia and lower positive affect (e.g., De Gucht, Fischler, & Heiser, 2004; Yelsma, 2007; Ciarrochi et al., 2014) or a lower tendency to experience positive emotions (Luminet, Bagby, Wagner, Taylor, & Parker, 1999). In this line, a recent meta-analysis of neural correlates of alexithymia found preliminary evidence for a decreased activation in several brain areas (right anterior and posterior insula and precuneus) in

alexithymia indicative of a reduced emotional awareness of positive affect in (van der Velde et al., 2013), which may underlie the lower positive affect that individuals with alexithymia experience.

This may be particularly problematic given the prominent role of positive emotions on individuals' health and well-being. Recent research suggests that positive emotions help people broaden their perspectives, build their resources, and are active ingredients in coping, thriving and flourishing (e.g., Fredrickson, 1998; Isen, 2000; Shiota et al., 2014). Positive emotions can trigger an upward spiral of emotional well-being independently of negative emotions (Fredrickson & Joiner, 2002). Also, a high level of positive emotions increases stress resilience (Tugade & Fredrickson, 2004; Tugade, Fredrickson, & Barrett, 2004) and sociability (Eid, Riemann, Angleitner, & Borkenau, 2003). In addition, recent research is suggesting that positive affect and cognitions may represent unique components of psychobiological resilience (Sin, Graham-Engeland, & Almeida, 2015; Aschbacher et al., 2012; Steptoe, Dockray, & Wardle 2009), which may have implications for the prevention and psychological treatment of depression and other mental health problems.

Although alexithymia may be directly associated with decreased positive emotions, (e.g., via poor activation of specific brain areas involved in emotional awareness), we hypothesize that psychological processes may also play an important role in such link.

Specifically, we focus on the construct of psychological inflexibility, which describes an individual's inability of choosing behavior in line with identified values and goals due to difficulties in connecting with the present moment fully, following rigid rules and attempting to control or avoid difficult internal experiences (Hayes, Strosahl, & Wilson, 1999; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Psychological inflexibility can be thought of as being excessively entangled in experiential avoidance and cognitive fusion. Experiential avoidance is defined as the tendency to attempt to suppress, inhibit or control the frequency or severity

of emotions, thoughts, and memories (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Using these strategies ultimately produces a maladaptive coping style and, as a result, it is associated with a wide range of psychopathology (e.g., Begotka, Woods, & Wetterneck, 2004; Kashdan, Breen, Afram, & Terhar, 2010; Kingston, Clarke, & Remington, 2010; Masuda & Tully, 2012). Cognitive fusion, which supports experiential avoidance, occurs when an individual's verbal processes (i.e., thoughts) markedly regulate overt behavior in ineffective ways due to the inability or failure to notice the process of thinking (context) over the products of thinking (content; Hayes et al., 2006; Pierson, Gifford, Smith, Bunting, & Hayes, 2004). A process that appears to be substantially similar to cognitive defusion is decentering (Bernstein et al., 2015). Decentering is often defined as the means by which an individual is able to view his or her thoughts and feelings as temporary, objective events in mind, instead of personally identifying with them (Teasdale et al., 2002; Safran and Segal, 1990; Fresco et al., 2007). This decentered perspective, and change in the relationship towards inner experiences, facilitates that a person non-judgmentally accepts the own mental events as what they are. If a person is able to objectively view their emotions aside from any personal connections or personal distress, this would allow for a person to become more aware of their emotions, leading to better coping strategies or ways in which to handle them. Like experiential acceptance, decentering is viewed as a necessary concept for mental health and a healthy development, whereas the absence of this ability leads to psychological dysfunction (e.g., Fresco et al. 2007; Kessel et al., 2016).

Psychological flexibility involves being willing to experience emotions without needing to change them. If an individual is low in psychological flexibility, this means he or she will be more likely to avoid, distract or ignore emotions which may limit opportunities for identifying and clearly labelling emotions. Some studies suggest that psychological inflexibility may be related to alexithymia. For example, Panayiotou et al. (2015) found that

experiential avoidance was a significant mediator of the relation between alexithymia and psychosomatic and depressive symptoms in a clinical sample. The authors suggested that difficulties in describing and identifying emotions is in fact an effort (deliberate or not) to avoid experiencing difficult affect, and that it is this mechanism that ultimately predicts the development of mental and physical health problems. Another study conducted with inpatient adolescents found evidence for the mediator role of experiential avoidance on the link between alexithymia and emotion regulation (Venta, Hart, & Sharp, 2012), suggesting that while the inability to effectively use language to identify and describe emotional states is strongly correlated with difficulties in regulating one's emotions, this relation is mediated by the unwillingness to tolerate aversive private experiences.

To our knowledge, no study explored the association between alexithymia and decentering. However, it is theoretically plausible that in order for a person to be able to decenter, or take a step back from one's feelings and emotions and to view them from an objective point of view, one must first be able to identify the particular emotion.

Typically, the focus of psychological inflexibility is on how people respond to thoughts, feelings, and physiological sensations that most people would find unpleasant. However, individuals may also attempt to avoid or control experiences normatively viewed as pleasant, as when people avoid feelings of joy for fear of future disappointment (Bond et al., 2011), or when they avoid feeling compassion for others for fear of being taken advantage of. In this line, the construct of fear of compassion has been recently introduced and refers to discomfort, difficulty or resistance to affiliative-based emotions, other- or self-directed (Gilbert, McEwan, Matos, & Rivis, 2011). Resistance to feelings of compassion has been associated with poor outcomes, such as depression, anxiety, stress, self-criticism in students (Gilbert et al., 2011, 2012) and in depressed patients (Gilbert, McEwan, Catarino, Baião, R. & Palmeira, 2014). Resistance to receive compassion from others was found to moderate the

association between self-criticism and depression in a cross-cultural study (Hermanto et al., 2016), and resistance to self-compassion was associated with PTSD symptom severity and psychological inflexibility (Miron, Sherrill, & Orcutt, 2015). It is plausible that difficulties in identifying and expressing feelings may extend to particular feelings, such as compassion. In this line, one study found a positive association between alexithymia and resistance to feelings of compassion (Gilbert et al., 2012).

Contrary to the experience of resistance to compassion is the concept of self-compassion, which involves adopting a kind and compassionate attitude towards oneself when suffering, recognizing one's experiences as part of the larger human condition, and bringing nonjudgmental awareness to one's painful experiences rather over-identifying with them (Neff, 2003a). Recently, it has been suggested that self-compassion can somewhat overlap with psychological flexibility (Yadavaia, Hayes, & Vilardaga, 2014). In fact, self-compassion involves an ability to willingly experience difficult emotions; to mindfully observe self-judging and distressing thoughts without allowing them to control behavior or states of mind; and to be able to take a perspective on experiences as simply parts of being human, that don't need to be avoided, changed, or escaped. Like psychological flexibility, self-compassion is negatively correlated with depression, anxiety, and psychopathology (MacBeth & Gumbley, 2012) and is positively correlated with well-being (Zessin, Dickhäuser, & Garbade, 2015).

It is plausible that individuals who have difficulty experiencing their emotions will also have difficulties accepting those emotions with kindness instead of judgment, and with mindful awareness. However, few studies to date explored the links between self-compassion and alexithymia (Aydin, Campus, & Kadıköy, 2014; Rusk, 2015).

Although there is a theoretical rationale for the associations between experiential avoidance, decentering, fears of compassion and self-compassion, the precise relation

between these concepts remains unclear. Some studies and theoretical considerations suggest that these processes, although related, may be non-overlapping components of psychological inflexibility. For example, preliminary research has supported ACT's conceptualization of cognitive fusion and experiential avoidance (Hayes, Strosahl, & Wilson, 2012) as both unique and interrelated processes (Bardeen & Fergus, 2016; Dinis, Carvalho, Pinto-Gouveia, J. & Estanqueiro, 2015). Also, it has been suggested that fear of self-compassion differs from the absence of self-compassion, and instead describes the active resistance of extending compassion toward oneself (Gilbert et al., 2011).

Aims

Against this background, the aim of the present study is to explore the relation between alexithymia and positive emotions, and the potential mediational effect of several psychological inflexibility-related processes (decentering, experiential avoidance, resistance to compassion, and self-compassion). These processes relate to psychological inflexibility in that they conceptually refer to fear and/or avoidance of private events (self-compassion and decentering inversely). Thus we hypothesize that these processes will be significantly inter-correlated, but not as high as to suggest that they are overlapping constructs.

We also hypothesize that individuals with elevated levels of alexithymia will report less frequent experiences of positive emotions, and will be less able to distinguish between different positive emotions (low emotional granularity). We also hypothesize that the association between alexithymia and positive emotions would be, at least partially, accounted for by an inability to decenter, or take a step back from one's feelings and emotions, by avoidance and denial of internal experiences, by resistance to feelings of compassion, and by difficulties in holding negative experiences with kindness, mindful awareness and a sense of shared humanity. We also hypothesize that decentering and self-compassion would be positively related to positive emotions and that experiential avoidance and resistance to

compassion would be negatively related to positive emotions. Finally, given that these processes are normally researched separately, we aimed to concurrently test the mediating role of each process in the relation between alexithymia and positive emotions. We hypothesize that these processes, although related, would independently account for the association between alexithymia and positive emotions.

Methods

Participants and Procedure

A convenience sample of 331 subjects from the general population were recruited to take part in the study. Participants were, on average, 33.31 years old ($SD = 14.03$), 97 were male and 234 were female. Regarding marital status, the majority of the sample was single ($n = 183, 55.3\%$), and had a graduate degree ($n = 176, 53.2\%$).

In line with the ethical requirements, it was emphasized that participants' cooperation was voluntary and that their answers were confidential and would be used only for the purpose of this study. All participants provided their written informed consent. Participants were asked to complete the validated Portuguese versions the self-report questionnaires, which took, on average, 15 minutes. All procedures were in accordance with the Helsinki Declaration of 1975, as revised in 2000.

Measures

Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994; Portuguese version by Prazeres, Parker, & Taylor, 2000). The TAS-20 measures three factors of alexithymia, namely: difficulty identifying feelings, or the inability to identify feelings and to distinguish them from the somatic sensations that accompany emotional arousal; difficulty describing feelings, or the inability to describe feelings to other people; and externally-oriented thinking, which measures the tendency of individuals to focus their attention externally. Each of the 20 items is rated on a five-point Likert scale ranging from 1 ('strongly

disagree') to 5 ('strongly agree'). Higher scores indicate greater alexithymia. In the present study, Cronbach's alphas were .72 for describing, .85 for identifying, .48 for externally-oriented thinking, and .84 for the total scale.

Dispositional Positive Emotion Scales (DPES; Shiota, Keltner, John, 2006; Portuguese version by Duarte, Pinto-Gouveia, & Sapeta, 2013). The DPES is a self-report measure designed to assess the disposition to experience seven discrete emotions, namely joy, contentment, pride, love, compassion, amusement, and awe. It consists of 38 items (5 or 6 items per scale), and uses a 7-point rating format (1 = 'strongly disagree' to 7 = 'strongly agree'). Higher scores indicate greater experience of each positive emotion. In the present study, Cronbach's alpha ranged between .83 (compassion) and .90 (contentment).

Experiences Questionnaire (EQ; Fresco et al., 2007; Portuguese version by Gregório, Pinto-Gouveia, Duarte, & Simões, 2015). The EQ consists of 20 items designed to measure decentering (14 items), and rumination (6 items). Items are rated on a scale from 1 to 5 ('never' to 'all the time'). Higher scores indicate greater decentering. For the purposes of this study, only the decentering scale was used. Cronbach's alpha was .77 for the decentering scale.

Acceptance and Action Questionnaire – II (AAQ-II; Bond et al., 2011; Portuguese version by Pinto-Gouveia, Gregório, Dinis, & Xavier, 2012). The AAQ-II is a 7-item measure of experiential avoidance. Answers are given on a 7-point scale ranging from 1 = 'never true' to 7 = 'always true'. Higher scores indicate greater experiential avoidance. In the present study, Cronbach's alpha was .92.

Fears of Compassion Scales (Gilbert et al., 2011; Portuguese version by Simões, 2012). There are three scales measuring fears of compassion, namely: fears of feeling or expressing compassion for others; fears of receiving compassion from others; and fears of compassion for self. Respondents rate on a Likert scale how much they agree with each

statement (0 = ‘don’t agree at all’ to 4 = ‘completely agree’). Higher scores indicate greater fears of compassion. In the present study, Cronbach’s alphas were .86 for fears of expressing compassion for others, .90 for fears of receiving compassion from others, and .93 for fears of giving compassion to self.

Self-Compassion Scale (SCS; Neff, 2003b; Portuguese version by Castilho, Pinto-Gouveia, & Duarte, 2015). The SCS is a widely used self-report measure developed to assess six components of self-compassion: self-kindness; self-judgment; common humanity; isolation; mindfulness; and over-identification. Scores on the six subscales were summed (after reverse-coding negative items) to create an overall self-compassion score. Items are rated on a 5-point scale (e.g., 1 = ‘almost never’ to 5 = ‘almost always’). Higher scores indicate greater self-compassion. In the present study, Cronbach’s alpha ranged between .55 and .83 for the subscales and was .90 for the total scale.

Statistical Analyses

Pearson correlation coefficients were computed to test the associations between the variables in study. To test the hypothesis that individuals with higher levels of alexithymia would show less positive emotional granularity, or ability to make fine-grained distinctions between emotional experiences, we computed intraclass correlations (ICCs) between the seven positive emotions for ‘people not presenting with alexithymia’ and ‘people presenting with alexithymia’. Larger ICCs indicate greater relation between emotions (i.e., lower degree of emotion granularity), while lower ICCs indicate less relation between emotions (i.e., higher degree of emotion granularity). We used the recommended cutoff scoring for the TAS total score (< 51 non-alexithymia and > 61 possible alexithymia; Bagby et al., 1994).

To test the mediation hypotheses, the Hayes’ PROCESS macro was used (Hayes, 2013). Direct and indirect effects were computed using a series of ordinary least squares regressions and the bootstrapping procedure (Preacher & Hayes, 2004; Preacher & Hayes,

2008). The significance of the indirect effect, based on the 95% confidence interval (CI) derived from 5,000 bootstrap resamples, is indicated when the CI values do not cross zero. The Bootstrap is helpful because total and indirect effects are often not multivariate normally distributed (Preacher & Hayes, 2008). We report the unstandardized coefficient (*B*) and standard error (*SE*) for each regression equation to indicate the predicted change in the dependent variable given a one-unit change in the independent variable, while controlling for the other variables in the equation. We also report *t* statistic, *p*-value and 95% confidence intervals for the direct effects. With the exception of the self-compassion model, we conducted multiple mediator analysis to explore the unique contribution of the mediators. Including several mediators in one model allows to determine the relative magnitudes of the indirect effects. Thus, in the first model experiential avoidance and decentering were entered simultaneously, and in the second model all three fear of compassion scales were also entered simultaneously. We also conducted a final multiple mediator model including all significant variables of the association between alexithymia and positive emotions. A conceptual diagram of the direct and indirect effects of alexithymia on positive emotions is presented in Figure 1. Statistical significance was set at .05 and IBM SPSS version 23 was used for all analyses.

[insert Figure 1]

Results

Relationships between Alexithymia and Positive Emotions

Correlations between alexithymia and positive emotions are presented on Table 1, and suggested that alexithymia is associated with decreased positive emotions.

To test a secondary hypothesis that individuals with higher levels of alexithymia would show an inability in noting fine distinctions between positive emotions (low positive emotional differentiation), when compared to individuals with lower scores of alexithymia, we conducted intraclass correlations (ICC) between the seven discrete positive emotions.

Results indicated that individuals with higher levels of alexithymia presented higher scores of ICC than individuals with lower scores of alexithymia (.88 vs .83). In addition, we conducted ICC separately for positive emotions characterized by high arousal (joy, pride and amusement) and low arousal (contentment, love, compassion and love). Results indicated that for high arousal emotions individuals with higher levels of alexithymia presented higher ICC scores when compared with individuals with lower levels of alexithymia (.81 vs .67). For low arousal emotions, this difference was less expressive (.76 vs .75).

[insert Table 1]

Relationships between Alexithymia, Positive Emotions, Decentering, and Experiential Avoidance

We began our analyses by exploring the correlations between the study variables. Results suggested that higher scores of decentering were significantly and positively correlated with the experience of all positive emotions. In contrast, higher scores of experiential avoidance were negatively associated with positive emotions, with the exception of compassion. We also found that decentering was negatively associated with alexithymia, and experiential avoidance was positively associated with alexithymia (Table 2).

Results for the mediation suggested that both decentering and experiential avoidance significantly mediated the relation between alexithymia and positive emotions. Specifically, we found significant indirect effects of decentering, $B = -0.25$, $BootSE = 0.08$, $BootCI [-0.43 - -0.12]$, $z = 3.86$, $p < .001$, and experiential avoidance, $B = -0.47$, $BootSE = 0.11$, $BootCI [-0.68 - -0.27]$, $z = 4.45$, $p < .001$. There were no significant differences between the two indirect effects, $B = 0.22$, $BootSE = 0.14$, $BootCI [-0.06 - 0.49]$. There were also significant direct effects of alexithymia on experiential avoidance, $B = 0.53$, $SE = 0.04$, $t = 12.55$, $p < .001$, 95% CI [0.44 - 0.61], and decentering, $B = -0.11$, $SE = 0.02$, $t = -4.79$, $p < .001$, 95% CI [-0.16 - -0.07], and of experiential avoidance, $B = -0.89$, $SE = 0.19$, $t = -4.78$, $p < .001$, 95%

CI [-1.24 - -0.52], and decentering, $B = 2.19$, $SE = 0.33$, $t = 6.66$, $p < .001$, 95% CI [1.54 - 2.84] on positive emotions. These results indicate that two individuals who differ by one unit in their alexithymia scores are estimated to differ by 0.47 units in their reported positive emotions as a result of the tendency for those with higher levels of alexithymia to present higher experiential avoidance (because a is positive), which in turn translates into decreased positive emotions (because b is negative). At the same time, two individuals who differ by one unit in their alexithymia scores are estimated to differ by 0.25 units in their reported positive emotions as a result of the tendency for those with higher levels of alexithymia to present lower decentering (because a is negative), which in turn translates into greater positive emotions (because b is positive).

Relationships between Alexithymia, Positive emotions, and Resistance to Compassion

Results for the correlational analyses suggested that higher scores of resistance to receive and give compassion was significantly and negatively correlated with the experience of positive emotions. We also found that resistance to give, and especially to receive compassion, was positively associated with alexithymia (Table 2).

Results for the mediation analyses suggested that both fear of receiving compassion and fear of self-directed compassion mediated the relation between alexithymia and positive emotions. Specifically, we found significant indirect effects for fear of receiving compassion, $B = -0.25$, $BootSE = 0.12$, $BootCI [-0.48 - -0.02]$, $z = 2.27$, $p = .024$, and fear of self-directed compassion, $B = -0.29$, $BootSE = 0.10$, $BootCI [-0.52 - -0.11]$, $z = 3.21$, $p = .001$, but not fear of giving compassion. There were no significant differences between the two significant indirect effects, $B = 0.05$, $BootSE = 0.18$, $BootCI [-0.30 - 0.42]$. There were also significant direct effects of alexithymia on fear of receiving compassion, $B = 0.47$, $SE = 0.05$, $t = 10.33$, $p < .001$, 95% CI [0.38 - 0.56], fear of giving compassion, $B = 0.18$, $SE = 0.04$, $t = 4.47$, $p < .001$, 95% CI [0.10 - 0.26], and fear of self-compassion, $B = 0.48$, $SE = 0.06$, $t = 8.55$, $p <$

.001, 95% CI [0.37 - 0.59]. There were also significant direct effects of fear of receiving compassion, $B = -0.53$, $SE = 0.23$, $t = -2.33$, $p = .020$, 95% CI [-0.97 - -0.09], and fear of self-compassion, $B = -0.61$, $SE = 0.18$, $t = -3.491$, $p = .001$, 95% CI [-0.95 - -0.27], on positive emotions.

Relationships between Alexithymia, Positive emotions, and Self-compassion

As presented in Table 2, self-compassion was positively associated with positive emotions, in particular joy, contentment and pride, and was negatively associated with alexithymia, in particular the inability to identify emotions.

Results for the mediation analyses suggested that self-compassion was a significant mediator of the relation between alexithymia and positive emotions, $B = -0.55$, $BootSE = 0.09$, $BootCI [-0.75 - -0.38]$, $z = 6.05$, $p < .001$. There was a significant direct of alexithymia on self-compassion, $B = -0.56$, $SE = 0.07$, $t = -8.13$, $p < .001$, 95% CI [-0.70 - -0.43], and a direct effect of self-compassion on positive emotions, $B = 0.98$, $SE = 0.11$, $t = 9.10$, $p < .001$, 95% CI [0.76 – 1.19].

[insert Table 2]

Multiple Mediation Model of the Relationship Between Alexithymia and Positive Emotions

To explore the individual effect of each mediator, over and above the effects of other mediators, we conducted multiple mediation analyses with the significant mediators found in the previous models. Table 3 presents the correlation between the mediator variables.

Results suggested that increases in self-compassion, experiential avoidance, and decentering independently mediated alexithymia's effects on positive emotions. Specifically, the total indirect effect was $B = -0.90$, $BootSE = 0.14$, $BootCI [-1.19 - -0.63]$, the indirect effect of self-compassion was $B = -0.27$, $BootSE = 0.08$, $BootCI [-0.45 - -0.12]$, the indirect effect of experiential avoidance was $B = -0.23$, $BootSE = 0.11$, $BootCI [-0.45 - -0.02]$, and the indirect effect of decentering was $B = -0.16$, $BootSE = 0.06$, $BootCI [-0.31 - -0.06]$. Fear of

receiving compassion and fear of self-compassion were no longer significant mediators in this model. Pairwise comparisons between the mediators showed that self-compassion, experiential avoidance, and decentering did not significantly differ in their mediating effects on positive emotions.

Discussion

Alexithymia has been consistently associated with poor mental health outcomes, such as depression, anxiety, and negative emotions, in clinical and non-clinical samples. Although fewer in comparison, some studies suggested that alexithymia is also associated with decreased positive emotions. Positive emotions play an important role in mental health and well-being, and thus individuals with higher levels of alexithymia may be deprived of such positive benefits. This study aimed to contribute to this literature. Although alexithymia may be directly associated with decreased positive emotions, we also hypothesized that psychological inflexibility would play an important mediating role in such link. Specifically, we hypothesized that an individual's unwillingness or inability to be in contact with internal experiences, without trying to avoid or control them, would be related to alexithymia and would help explain the link between alexithymia and decreased experience of positive emotions. In this study, we measured several psychological processes related to psychological inflexibility, namely experiential avoidance, decentering (inversely), resistance to feelings of compassion, and self-compassion (inversely).

Given that few studies to date explored the relation between alexithymia and positive emotions, we began by testing whether there was such a relation, and whether individuals with higher levels of alexithymia experienced positive emotions differently. Results suggested that alexithymia was associated with decreased experience of several positive emotions. This finding is in line with previous studies (De Gucht et al., 2004; Yelsma, 2007; Luminet et al., 1999). Results also suggested that people presenting with alexithymia showed less emotional

granularity, or emotional differentiation, of positive emotions, particularly for high arousal emotions. This result is in line with previous studies that showed an association between alexithymia and lack of emotional awareness, and low emotional granularity (e.g., Erbas et al., 2014; Kashdan et al., 2015). The fact that emotional differentiation was particularly low for high arousal positive emotions may be related with some findings from the psychophysiological literature that suggested that people presenting with alexithymia may have a problem processing the arousal dimension of emotion, regardless of its valence (e.g., Peasley-Miklus, Panayiotou, Vrana, 2016).

Results of the mediation analyses were in line with our hypotheses, and suggested that the association between alexithymia and decreased positive emotions was mediated by several psychological inflexibility-related constructs.

Specifically, we found that decentering was a significant mediator of the relation between alexithymia and positive emotions, and was negatively related to alexithymia and positively related to positive emotions. This is the first published study to our knowledge to explore the relations between decentering and alexithymia. This finding suggests that an inability to identify and distinguish emotions may prevent one from being able to take a step back from one's emotions and to view them from an objective point of view. This, in turn, seems to lead to decreased positive emotions. We suggest that when distressing feelings and bodily sensations arise, instead of letting these experiences dominate attention or dictate behavior, individuals with low levels of alexithymia may be able to distance themselves, probably because they are more aware of their conscious states and thus find it easier to shift attention and maintain emotional stability (Fogarty et al., 2013; Pond et al., 2012). With this psychological distance, there is greater opportunity to direct effort behavior toward personally valued goals, which may promote more frequent positive emotions.

Experiential avoidance was also a significant mediator of the relation between alexithymia and positive emotions. This finding is in accordance with a previous study in which experiential avoidance was found to be correlated with alexithymia, especially its difficulty in identifying feelings dimension (Panayiotou et al., 2015). The authors concluded that alexithymia may be a learned behavior used to avoid unwanted emotions and that this avoidant behavior may form the link between alexithymia and psychopathology. Experiential avoidance, in turn, may decrease positive emotions. For example, one study found that experiential avoidance was negatively associated with daily positive emotions, and the authors suggested that experiential avoidance may disrupt pleasant and spontaneous activities and decrease positive affective experiences (Kashdan, Barrios, Forsyth, & Steger, 2006). These results suggest that while the inability to effectively identify and describe emotional states is correlated with less positive emotions, this relation is mediated by the inability or unwillingness to tolerate aversive private experiences.

Results also indicated that alexithymic traits are positively associated with resistance or unwillingness to experience compassion, whether from others, to others, or self-directed. Only resistance to give compassion to others was not a significant mediator of the relationship between alexithymia and positive emotions. These results suggest that individuals with alexithymia may have difficulties experiencing and processing feelings of care, kindness, concern or support, which in turn, probably through impairments in social skills and interpersonal relatedness, leads to decreased positive emotions. These results may be interpreted in the light of the studies linking alexithymia and lack of empathic abilities. The majority of people who experience alexithymia not only have little to no functional awareness of their own emotions but also struggle to comprehend many standard emotions in other people. This may be because understanding and recognizing internal feelings is a fundamental basis for empathizing with others (Moriguchi et al., 2007; Decety & Jackson 2004).

Difficulties in recognizing the suffering of others, in turn, may inhibit feelings of compassion. Also, difficulties in identifying one's feelings may prevent one from interpersonally communicating one's emotions, which in turn may prevent them from enjoying the support, and care that loved ones could otherwise provide. However, when all variables were included in the final model, fear of compassion was no longer a significant mediator. These results suggest that, relative to self-compassion, decentering, and experiential avoidance, fears of compassion may not be as important in the association between alexithymia and decreased positive emotions.

Our results also showed that self-compassion also mediated the alexithymia-positive emotions link. It seems that individuals who have difficulty experiencing their emotions will also have difficulties accepting those emotions with kindness instead of judgment, and with mindful awareness, which is in line with previous studies (Aydin et al., 2014; Rusk, 2015).

Finally, we found that the correlates of psychological inflexibility were significantly related to each other in the expected direction. Overall, the pattern of correlations was not so high as to suggest that the constructs are overlapping (the strongest correlation coefficient was .62 between experiential avoidance and self-compassion, which indicates that these processes share 38% of variance), nor so low as to suggest absence of association. These results are in line with the few studies exploring the relationships between these constructs. For example, in a sample of patients with chronic pain, experiential avoidance and self-compassion were significantly correlated ($r = .61$; Costa & Pinto-Gouveia, 2013). In another study, fear of self-compassion was positively related ($r = .47$) to experiential avoidance (Miron et al., 2015), and experiential avoidance and decentering have been shown to be negatively correlated ($r = -.43$; Gregório et al., 2015).

In conclusion, individuals with higher levels of alexithymia seem to experience diminished positive emotions as a function of their habitual 1) failure to take a step back and

viewing one's thoughts and feelings as temporary, objective events in mind; 2) unwillingness to be in contact with inner experiences without trying to alter their form or frequency; 3) inability to experience affiliative-related emotions; 4) failure to hold negative experiences with kindness, mindful awareness and with a sense of shared humanity.

Implications

Alexithymia is associated with poor psychotherapy outcomes (e.g., Ogradniczuk et al., 2011). Fortunately, at the same time, several intervention studies demonstrate that those with heightened alexithymia across clinical diagnoses have the potential to benefit from psychotherapy (e.g., Cameron et al., 2014; Pinna et al., 2015). It is crucial to investigate factors that may be related to alexithymia and that may contribute to these individuals' difficulties. Our findings suggest that the therapeutic targeting of alexithymia alone may not be sufficient without also targeting the mediating processes in an explicit way, namely psychological inflexibility-related processes. In this line, one of the main goals of Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) is to increase psychological flexibility, which involves helping clients to disentangle themselves from the cycle of experiential avoidance and cognitive fusion. An increased interest in self-compassion by the contextual behavioral community is now manifesting in empirical studies (e.g., Yadavaia et al., 2014), adding to the growing body of research showing that self-compassion can be cultivated (e.g., Neff & Germer, 2013; Birnie, Speca, Carlson, 2010). However, clinical strategies may also be needed to identify and undermine potential resistances of feelings of compassion.

We believe that these constructs, although relatively independent, may mutually enhance one another. So for example, by targeting experiential avoidance and decentering abilities, patients may increase their willingness to be in contact with their resistance and fear of experiencing compassion, and to experience self-criticisms as passing events in the mind,

without having to be believed, proven wrong, or engaged. At the same, self-compassion may be a value which would allow to embrace the suffering parts of the self with love and acceptance rather than avoiding thoughts and feelings linked to them (Yadavaia et al., 2014). In addition, our study provides preliminary evidence that alexithymia may be related to low positive emotional granularity. Thus, it may also be important to provide these clients with opportunities to learn richer and functional repertoires of verbal behaviors about emotional contexts.

Despite these promising findings, several limitations should be taken into account. First, the cross-sectional nature of the design does not allow to establish causality in the relations between the variables. Although it is theoretically plausible that people presenting with alexithymia may have difficulties identifying, distinguishing, and expressing positive emotions, it is also possible that positive emotions may influence alexithymic traits. In this line, some studies have suggested that levels of alexithymia are dependent on fluctuations in emotional distress (e.g., Honkalampi, Hintikka, Laukkanen, Viinamaki, 2001). Similarly, it is not possible to establish a causal relation between alexithymia and the psychological processes explored in this study (experiential avoidance, decentering, fear of compassion, and self-compassion). Thus, future studies using experimental and longitudinal designs could provide important cues to the temporal relations between these constructs. In addition, the relations between the mediating processes should be further explored. For example, in a previous study fear of self-compassion and psychological inflexibility interacted to predict PTSD symptom severity (Miron et al., 2015), and in another study experiential avoidance and cognitive fusion interacted to predict several emotional distress indicators (Bardeen & Fergus, 2016).

Also, this study relied entirely on self-report measures, and thus the possible effect of shared method variance and of bias associated with such methodology (e.g., response bias,

social desirability) should be taken into account. For example, the AAQ-II is the most widely used measure of experiential avoidance. However, it has been suggested that the AAQ-II may not be precisely measuring experiential avoidance, but related constructs (e.g., psychological inflexibility, general distress; Wolgast, 2014). As such, the present results should be replicated using other measures of experiential avoidance. Recent studies are also using more direct techniques to explore fundamental assumptions underlying the alexithymia construct (e.g., van der Velde et al., 2013). More ecologically valid methods of exploring daily emotions and the ways people react to day-to-day situations may also offer a richer understanding of such processes.

Conclusion

It is now widely recognized that positive emotions contribute to our psychological and physical well-being. However, some people struggle to understand and recognize their emotional states, and such traits may impact their ability to experience positive emotions. Psychological inflexibility, marked by processes such as experiential avoidance, inability to decenter, resistance to compassionate feelings, and lack of self-compassion, may be important in the association between alexithymia and decreased positive emotions. As the first study exploring the relation between alexithymia, psychological flexibility-related constructs and decreased experience of positive emotions, our findings may be useful in advancing both conceptual understandings of these constructs and the therapies that target them.

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Table 1

Bivariate Correlations Between Alexithymia and Positive Emotions

	Describing	Identifying	External Thinking	TAS Total
Joy	-.26**	-.26**	-.20**	-.20**
Contentment	-.33**	-.35**	-.17**	-.28**
Pride	-.32**	-.31**	-.19**	-.23**
Love	-.32**	-.31**	-.18**	-.25**
Compassion	-.15**	-.13*	-.31**	-.06
Amusement	-.16**	-.14*	-.17**	-.14*
Awe	-.19**	-.16**	-.15**	-.13*
DPES Total	-.33**	-.32**	-.25**	-.25**

Note. ** $p < .05$; DPES = Dispositional Positive Emotions Scale; TAS = Toronto

Alexithymia Scale

Table 2.

Bivariate Correlations Between Alexithymia, Decentering, Experiential Avoidance, Fears of Compassion, Self-Compassion and Positive Emotions

	Decentering	Experiential avoidance	Fear of receiving compassion	Fear of giving compassion	Fear of self- compassion	Self- compassion
Joy	.41**	-.39**	-.26**	-0.05	-.32**	.46**
Contentment	.39**	-.55**	-.28**	-.12*	-.31**	.55**
Pride	.48**	-.42**	-.31**	-.03	-.29**	.50**
Love	.35**	-.39**	-.42**	-.14*	-.36**	.39**
Compassion	.23**	0.00	-.19**	-.09	-.22**	.10
Amusement	.22**	-.18**	-.16**	.03	-.23**	.22**
Awe	.33**	-.24**	-.17**	-.07	-.19**	.37**
DPES Total	.46**	-.43**	-.34**	-.09	-.37**	.51**
Describing	-.33**	.46**	.41**	.13*	.37**	-.39**
Identifying	-.36**	.63**	.46**	.21**	.47**	-.50**
External Thinking	-.24**	.24**	.25**	.24**	.23**	-.23**
TAS Total	-.25**	.57**	.50**	.22**	.44**	-.41**

Note. ** $p < .05$; DPES = Dispositional Positive Emotions Scale; TAS = Toronto Alexithymia Scale

Table 3

Bivariate Correlations Between the Mediator Variables

	1	2	3	4	5	6
1. Experiential Avoidance	-	-.39**	.48**	.23**	.47**	-.62**
2. Decentering		-	-.39**	-.28**	-.19**	-.30**
3. Fear of receiving compassion			-	.41**	.69**	-.42**
4. Fear of giving compassion				-	.30**	-.20**
5. Fear of self- compassion					-	-.39**
6. Self-compassion						-

Note. ** $p < .01$