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Self-as-context and depressive symptoms in the general population: A further analysis of the Self Experiences Questionnaire

Abstract

The current study aims to contribute to the psychometric validation of the Self Experiences Questionnaire (SEQ), a measure of self-as-context as conceptualized by Acceptance and Commitment Therapy, and to contribute to a better understanding of the relationship between self-as-context, other psychological flexibility processes, and depressive symptoms. The sample ($N = 266$; 72.6% women) was obtained through paper-pencil and online collection methods in the general Portuguese population. Confirmatory factor analysis, reliability analyses, and convergent and divergent analyses were conducted. A mediation analysis of the effects of self-as-distinction and self-as-observer on depression symptoms through openness to experience, behavioral awareness, and valued action (while controlling for brooding) was performed using PROCESS. Items 8, 12 and 15 were removed to achieve the best model fit, which resulted in a 12-item final version of the SEQ. This version appears to be a psychometrically valid two-dimensional measure of self-as-distinction and self-as-observer, as well as a one global measure of self-as-context. Results from mediation analyses suggested that the relationship of self-as-observer and self-as-distinction with depressive symptoms is mediated by the ability to be behaviorally aware and to act according to personal values, but not by the ability to be open to experience. The behaviorally-oriented aspects of psychological flexibility seem to have particular importance on the presentation of depressive symptoms. More studies are nonetheless needed to analyze SEQ's structure and validity in order to attain a consensual version of the questionnaire.

Keywords: Self Experiences Questionnaire; Self-as-context; Depression; Psychological Flexibility; Psychometric validation.

Introduction

Research on psychological suffering have focused widely on the content of thoughts as a central element in the etiology of psychopathological symptoms (e.g., Beck, 1964; Young, 1990). When it comes specifically to depressive symptoms, studies have been targeting a vast array of self-focused content (e.g. Dozois & Rnic, 2015), such as self-esteem (e.g. Hilbert et al., 2019; Sowislo & Orth, 2013), self-concept (e.g. Drew et al., 1996) and overall negative self-evaluation (e.g., Porter et al., 2019; Swallow & Kuiper, 1988). This route of research on the conceptualized “self” tends to ignore the ontogeny of self and its ever-changing nature. Additionally, although the last two decades have witnessed the emergence of new psychological approaches that focus less on the content of negative thoughts, and more on the process underlying these different thoughts (Hayes & Hofmann, 2017; Hofmann & Hayes, 2018), empirical research have paid little attention to the relationship between self-focused processes and depressive symptoms.

Acceptance and Commitment Therapy (ACT; Hayes et al., 1999) is based on the Psychological Flexibility Model (PFM), which suggests that human well-being results from the ability to flexibly regulate behavior according to environmental contingencies which lead to actions that are congruent with personal values (Hayes et al., 2006). Psychological Flexibility (PF) arises from the interplay between six core psychological processes (i.e., cognitive defusion, acceptance, contact with present moment, self-as-context, values and committed action) that can be grouped into three overall processes: being open, aware and engaged/active (Hayes et al., 2011). Several studies have corroborated that PF is a central process underlying ACT (Ciarrochi et al., 2010; Stockton et al., 2019), and that psychological (in)flexibility processes are relevant in the etiology of depressive symptoms: cognitive defusion (e.g., Bramwell & Richardson, 2017; Hinton & Gaynor, 2010), acceptance (e.g., Weiss et al., 2013), present moment awareness (e.g., Solem et al., 2017), and values and committed action (e.g., Doi et al., 2016).

However, less attention has been paid to the self-related processes in the PFM, which include three senses of “self”. *Self-as-concept* - also known as self-as-story (Torneke, 2010) - consists in a sense of self conceptualized according to personal descriptions, evaluations, and narratives, rather than based on the ongoing experience, and can be materialized in self-related statements such as “I am a failure”; *self-as-process* - also described as the ongoing awareness of the present moment (Foody et al., 2012) – consists of the moment-to-moment experience of the self (e.g., thoughts, memories, emotions, sensations) in the here-and-now; and *self-as-context* encompasses an observing and detached stance towards the self, where the “I” in self is experienced here-and-now, whereas the self-related thoughts and feelings are experienced

there-and-then (e.g., Foody et al., 2013). Research has been conducted using proxy measures of self-as-concept and self-as-process - for example, by using measures of self-compassion and present moment awareness, respectively (e.g., Moran et al., 2018). Few studies have explored self-as-context and its relationship with psychopathological symptoms, perhaps due to the inexistence of a suitable measure. However, the few studies that did so suggest that a negatively conceptualized self is positively associated with psychological distress, while self-as-context is negatively associated with psychopathological symptoms (see Godbee and Kangas, 2020 for a systematic review). This gap in empirical research is particularly troublesome when it comes to depression given that self-related content and processes are thought to be at the core of the experience of depressive symptoms (e.g. Anderson & Skidmore, 1995; Pössel & Thomas, 2011).

Studies in the field of Relational Frame Theory (RFT), particularly in deictic framing [see Barnes-Holmes, Y., et al., (2004) for an in depth discussion], have provided evidence that suggests that self-conceptualized negative descriptions predict reduced well-being, whereas an observing sense of self predicts less depressive symptoms (Atkins & Styles, 2016; Styles & Atkins, 2018), including in young people (Moran et al., 2018; Moran & McHugh, 2019). This is consistent with the PFM suggestion that psychopathology may arise when behavior is not regulated by the overall context, but instead by a conceptualized past, future and self (Hayes et al., 2006), including in depression (Noureen & Malik, 2019). Alternatively, the PFM proposes that the development of a self-as-context stance (i.e., the self as an ongoing process through which one can be fully aware of the flow of experience) (Hayes et al., 2006) is a crucial element for behaving towards a valued life, and ultimately towards less psychological suffering. Further, as self-as-context is intimately related to awareness, as well as acceptance of the ongoing internal experience, it may be postulated that it may also influence these processes (Hayes et al., 2006). Indeed, the link between a self-as-context stance and well-being (Atkins & Styles, 2016; Styles & Atkins, 2018) may in fact be mediated by self-as-context's possible influence on one's ability to be aware and open to experience, and to engage in valued action. In this logic, it can also be hypothesized that a conceptualized self may restrict one's ability be aware and sensible to internal and external contexts (Hayes et al., 2006) and thus lead to low mood.

Nevertheless, these hypotheses have never been explored and, outside the context of RFT, few studies have explored self-as-context, and only proxy constructs have been a target of empirical research. Perhaps one of the most closely conceptualized constructs to self-as-context is decentering – described as

the ability to notice the ongoing experience as temporary rather than necessarily truthful reflections of the self (Safran & Segal, 1990), given that both encompass the disidentification from internal experiences (Bernstein et al., 2015). However, even though there is plenty empirical data on the relationship between decentering and mental health (e.g., McCracken et al., 2014) and depressive symptoms (e.g., Fresco et al., 2007; Ishikawa et al., 2017), including as a buffer of well-known depressogenic processes such as rumination (e.g., Andreotti et al., 2018; Lo et al., 2014), it cannot be accurately extrapolated to self-as-context given that decentering is not exclusively a self-focused disidentification process. Also, while decentering is the stance of noticing the ongoing experience, self-as-context goes beyond that given that it encompasses a sense of the “I” (i.e., the “container” of inner verbal experience) as the context where the experience occurs (e.g., Styles & Atkins, 2018). Also, the observing domain of mindfulness (Baer et al., 2006), which is suggested as an essential ability in mindfulness meditation (e.g., Lilja et al., 2012), can tentatively be used as a proxy of self-as-context, and is a predictor of depressive symptoms (e.g., Barnes & Lynn, 2010). However, the observing domain of mindfulness does not necessarily guarantee a disidentified experience of the self, but rather the ability to simply notice the experience of daily activities.

The Self Experiences Questionnaire (SEQ; Yu et al., 2016) was developed to specifically measure self-as-context as a construct from the PFM. Although the SEQ was developed having in mind chronic pain, it is not a content-specific measure, thus being potentially applicable to different populations. The original validation study hypothesized a three-factor scale with 29 items. However, factor analysis failed to corroborate this, and the final version was composed of 15 items with two factors: self as distinction (the degree to which one is disidentified with self-related thoughts and feelings) and self as observer (the degree to which one is able to have a perspective-taking stance to internal experiences). Although the final 15-items two-factor structure presented good psychometric properties, its factor structure and items composition are still an ongoing topic of discussion. Specifically, a further study explored the factor structure of the SEQ in a sample of patients with fibromyalgia (Yu et al., 2017), and failed to replicate the results of the original paper. The original structure did not reach acceptable model, and the best model was composed of 11-items (items 6, 7, 9 and 10 were removed) (Yu et al., 2017). These different versions of the SEQ raise legitimate concerns regarding the factor structure of the SEQ, and calls for further analyses of its psychometrics. Also, to our knowledge, the usefulness of the SEQ to assess self-as-context in populations other than chronic pain has yet to be demonstrated. Indeed, although the SEQ seems to be significantly correlated with depression and pain-related outcomes (Yu et al., 2016, 2017), it is still lacking

data on its relationship with depressive and depression-related processes (e.g., rumination) in general population. Also, the association between the SEQ and PF has not yet been explored using multidimensional measures of PF, which seems to provide greater and more nuanced knowledge on patterns of flexibility (Rogge et al., 2019).

The current study aims to contribute to the psychometric validation of the SEQ by conducting a confirmatory factor analysis (CFA), reliability analyses, and convergent and divergent analyses in a Portuguese sample from the general population. Also, this study aims to contribute to a better understanding of the relationship between self-as-context, other PF processes and depressive symptoms. To do so, this study tests a mediational model in which the two dimensions of self-as-context are associated with depressive symptoms through behavioral awareness, valued action and openness to experience, while controlling for rumination.

Method

Procedures

The total sample ($N = 266$) was obtained in the general Portuguese population (inclusion criteria: age between 18 and 65), through 1) paper-pencil ($n = 172$), exclusively collected for the purpose of the current study (which included a battery of questionnaires aiming at conducting correlation and regression analyses), 2) through online collection ($n = 94$), which was part of a larger study (the only questionnaire relevant for the current study was the SEQ). In the paper-pencil modality, data collection took place in Portuguese colleges, universities, superior education institutes, public institutions, and companies in the Centre region of Portugal. A battery of questionnaires was provided to each participant who then would complete it and return it. The online collection was performed through social networks and by e-mail, using a snowball sampling recruitment method, through an online survey.

Prior to providing any data, participants were informed about the voluntary character of their participation and the confidential and anonymous nature of collected data. Informed consent was obtained from all participants. This study was approved by the Ethics Committee of the [name of the Faculty].

Participants

The total sample was composed of 266 participants (72.6% women and 27.4% men), with a mean age of $M = 31.72$ ($SD = 12.21$) ranging from 18 to 65 years of age. Participants were either married or cohabitating (34.4%), single (38.2%), in a non-cohabitating relationship (23.7%), divorced (3.1%), or widowed (0.8%). Years of education ranged from 4th grade to PhD ($M = 15.07$; $SD = 2.85$). The majority

of participants were either employed (58.2%) or a student (40.6%). Confirmatory Factor Analyses and Reliability Analyses of SEQ were performed using this sample.

A subsample composed exclusively of participants who responded the paper and pencil collection of data was used to perform the Correlation and Regression Analyses. This subsample was composed of 172 participants (63.9% women and 36.1% men), with ages ranging from 18 to 62 ($M = 30.10$; $SD = 12.25$). Regarding marital status, 39.9% of the participants were single, 29.2% were married or cohabiting, 25.6% were in a non-cohabiting relationship, 4.8% were divorced, and 0.6% widowed. Years of education ranged from 4th grade to PhD ($M = 14.26$; $SD = 2.88$) and most of the participants were students (53.6%) or employed (49.4%).

Adaptation of the SEQ to the Portuguese population

The SEQ is a 15-item measure in which participants are asked to rate the extent to which each item is true on a 7-point scale (0 = 'Never true' to 6 = 'Always true'). The SEQ presented high internal consistencies in its original study, with a Cronbach's alpha of 0.90 for the total scale, 0.88 for the "self as distinction" subscale (e.g., "I am able to separate myself from my thoughts and feelings"), and 0.87 for the "self as observer" subscale (e.g., "Above all my experiences, there is a sense of my self who is noticing them").

In order to adapt the SEQ to the Portuguese language and culture, the research team followed a combined method of back translation with decentering (see Erkut, 2010 for an in-depth description). After obtaining authorization from the original authors of the SEQ (Yu et al., 2016), three portuguese native speakers who are part of the research team, and well-versed in ACT literature, have translated to Portuguese the original English items of the SEQ. A back translation to English was then conducted by an expert in ACT who speaks both portuguese and english, and the correspondence of each version analysed, specifically the cultural equivalence of items and phrasing, avoiding literal translations and ensuring a functionally equivalent translation (Erkut, 2010). The final Portuguese items were applied to a small group of adults from the Portuguese general population, who confirmed the readability and clarity of the measure, and did not provide suggestions for further changes.

Measures

Participants from both samples completed a socio-demographic form (which included questions regarding age, gender, nationality, marital status, completed years of education, and occupation). Participants additionally completed the Portuguese versions of the following self-report instruments.

Comprehensive assessment of Acceptance and Commitment Therapy processes (CompACT; Francis et al., 2016; Portuguese version by Trindade et al., 2019). This 23-item self-report instrument measures three domains of psychological flexibility: Openness to experience (e.g., “I try to stay busy to keep thoughts or feelings from coming” - reverse item); Behavioural awareness (e.g., “It seems I am “running on automatic” without much awareness of what I'm doing” - reverse item) and Valued action (e.g., “I behave in line with my personal values”). Participants were asked to indicate each item’s accuracy on a 7-point Likert scale (0 = ‘Never true’ to 6 = ‘Always true’). In the original study, this self-report measure holds good internal consistencies for the total scale ($\alpha = 0.91$) and for each subscale, with Cronbach’s alphas varying between 0.87 and 0.90 (Francis et al., 2016). The Portuguese validation study also presented good psychometric properties for the total scale and subscales, with Cronbach’s alphas above 0.80 (Trindade et al., 2019). In the current study, the CompACT presented acceptable reliabilities: $\alpha_{total} = .84$, $\alpha_{OE} = 0.76$, $\alpha_{BA} = 0.88$, $\alpha_{VA} = 0.82$.

Ruminative Response Scale (RRS-10; Treynor et al., 2003; Portuguese version by Dinis et al., 2011) The RRS-10 assesses individuals’ level of tendency to engage in ruminative thoughts, in response to feelings of sadness. This 10-item scale is rated on a 4-point Likert scale (0 = ‘Almost Never’ to 3 = ‘Almost Always’) and comprises two subscales: Reflective, which refers to the attempt to understand and alleviate difficulties (e.g., “Write down what you are thinking and analyze it”), whereas the Brooding subscale portrays the maladaptive aspect of ruminative thoughts, which focus on negative consequences and the challenges that one has to face in order to overcome problems (e.g., “Think “Why do I have problems other people don’t have?”). The Reflective and Brooding subscales of the RRS-10 demonstrated a good level of internal consistency in the original studies ($\alpha = 0.72$ and 0.77 , respectively; Treynor et al., 2003;) and in its Portuguese version ($\alpha = 0.75$ and 0.76 , respectively; Dinis et al., 2011). In this study, the Reflective subscale presented a Cronbach’s alpha of 0.61, and the Brooding factor presented a Cronbach’s alpha of 0.75.

The Depression, Anxiety and Stress Scale–21. (DASS-21; Lovibond & Lovibond, 1995; Portuguese version by Pais-Ribeiro et al., 2004) This 21-item self-report measure was designed to specifically measure the participants’ levels of depression, anxiety and stress experienced during the week prior to the evaluation. It uses a 4-point scale (0 = ‘It did not apply to me at all’ to 3 = ‘It applied to me most of the time’). For the purpose of this study, only the depression subscale was used (e.g., “I felt that I had nothing to look forward to”). This subscale presented good internal consistencies in the original study

($\alpha = 0.88$; Lovibond and Lovibond, 1995), the Portuguese validation study ($\alpha = 0.85$; Pais-Ribeiro et al., 2004), as well as in the current study ($\alpha = 0.87$).

Analytical Strategy

A first- and a second-order Confirmatory Factor Analyses (CFA), with Maximum Likelihood as estimation method were performed ($N = 266$). The first-order CFA aimed to assess SEQ's adequacy considering its two subscales (self as distinction and self as observer), while the second-order CFA intended to analyse the measure's adequacy to be scored as a global dimension of contextual self. Results from the CFAs were analysed through CMIN/DF (adequate when < 5 ; Hair et al., 1998), and several goodness of fit indices: the Comparative Fit Index (CFI), the Tucker and Lewis Index (TLI), which are considered acceptable when > 0.90 (Jaccard & Wan, 1996; Hair et al., 1998), and the Standardized Root Mean Square Residual (which should be < 0.08 ; Hu & Bentler, 1999). Items' individual reliability and standardized factor weights were used to assess SEQ's local adjustment, considering acceptable values of standardized regression weights ($SRW \geq 0.50$ and squared multiple correlations ($SMC \geq 0.25$ (Marôco, 2010).

Cronbach's alpha values (that show good internal reliability when > 0.70 ; Kline, 2005) were also analysed ($N = 266$). Average variance extraction (AVE; acceptable when > 0.50 ; Fornell & Larcker, 1981) was calculated to assess convergent validity and composite reliability (acceptable when > 0.70 ; Fornell & Larcker, 1981) to analyse construct reliability.

The SEQ's relationship with other variables was analysed ($n = 172$) through Pearson correlation analyses (Cohen, 1988). Correlations between .30 and .50 are considered low, between .50 and .70 moderate and above .70 high (Tabachnick & Fidell, 2007). A mediation analysis of the association of self as distinction and self as observer with depression symptoms through openness to experience, behavioural awareness, and valued action (while controlling for brooding) was conducted ($n = 172$) using PROCESS (Model 4; Hayes, 2013). The decision to control for brooding was based on previous literature that shows a strong correlation between brooding and depression (e.g., Treynor et al., 2003). The indirect effect was examined using a bootstrap procedure with 5000 resamples, with a 95% confidence interval (CI). The indirect effect is considered significant when the interval between the lower and upper CI does not contain zero (Hayes, 2013).

Results

Confirmatory Factor Analysis

A first-order CFA of the Portuguese-adapted SEQ was performed to assess the scale's structure ($N = 266$). Results revealed a poor model fit (CMIN/DF = 4.78; CFI = 0.77; TLI = 0.72; SRMR = 0.08)

and a poor local adjustment for items 8 (SRW = 0.38; SMC = 0.15), 12 (SRW = 0.45; SMC = 0.20), and 15 (SRW = 0.39; SMC = 0.15). These items were removed for not meeting the criteria for adequacy. The model was readjusted and all 12 remaining items demonstrated good adjustments, with SRW ranging from 0.56 (item 13) to 0.78 (item 10), and SMC with values from 0.31 (item 13) to 0.60 (item 10). Nevertheless, the model fit, although improved, was still poor (CMIN/DF = 4.75; CFI = 0.83; TLI = 0.79; SRMR = 0.07) and modification indices results suggested the correlation of 3 pairs of error terms. Items from each pair were theoretically linked and belonged to the same factor (self as distinction). Therefore, pairs of errors terms of items 2-3, 4-6, and 6-7 were correlated, which improved model fit to an acceptable adjustment (CMIN/DF = 2.88; CFI = 0.92; TLI = 0.90; SRMR = 0.06).

A second-order CFA was conducted with this 12-item structure, revealing an acceptable fit to empirical data (CMIN/DF = 2.88; CFI = 0.92; TLI = 0.90; RMSEA = 0.08, 0.07 to 0.10, $p < 0.001$; SRMR = 0.06).

These results overall demonstrate that the total score and subscales of the 12-item Portuguese version of the SEQ appear to be adequate. Self-as-distinction was composed of items 1, 2, 3, 4, 5, 6 and 7, and self-as-observer was composed of items 9, 10, 11, 13 and 14.

Reliability Analysis

The Portuguese version of SEQ (i.e., 12 items) was shown to have acceptable to good internal consistencies (total scale $\alpha = 0.88$; self as distinction subscale $\alpha = 0.84$; self as observer $\alpha = 0.77$; Kline, 2005) ($N = 266$). The value for AVE was 0.89, showing that the SEQ presents convergent validity, and composite reliability was 0.89, demonstrating SEQ's construct validity (Fornell & Larcker, 1981). Item-total correlations ranged from 0.48 (item 14) to 0.66 (item 10). Results also showed that removing any of the 12 items would not improve SEQ's internal consistency.

Correlation between SEQ, psychological processes and depressive symptoms

Table 1 displays Pearson's correlation coefficients for all study's variables. As expected SEQ total score and both subscales showed positive and low to moderate associations with all CompACT subscales, except for the association between self as observer and CompACT valued action subscale which was non-significant. Additionally, significant negative and low to moderate associations were found between SEQ and depressive symptoms (DASS) and brooding (RRQ), but not with reflection (RRQ).

----- insert Table 1 around here -----

Mediation analysis

Two mediation models were tested through PROCESS macro to explore whether the relationships between self as distinction (model 1) and self as observer (model 2) with depression symptoms were mediated through openness to experience, behavioral awareness, valued action (while controlling for brooding). Table 2 displays the direct effects for the overall results for both mediational models.

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Model 1 accounted for 35% of the variance of depression symptoms, and results show that depression symptoms in the overall model were significantly predicted by behavioral awareness ($b = -.08$, $p = .05$, $95\%CI = -.170/-.001$), valued action ($b = -.15$, $p = .021$, $95\%CI = -.284/-.024$) and brooding ($b = .41$, $p = .009$, $95\%CI = .171/.647$), but not by openness to experience ($b = -.06$, $p = .089$, $95\%CI = -.138/.010$). Indirect effect results show that the relationship between self as distinction and depressive symptoms was mediated by behavioral awareness ($b = -.03$, $95\%CI = -.091/-.003$), valued action ($b = -.04$, $95\%CI = -.027/-.002$) but not by openness to experience ($b = -.03$, $95\%CI = -.097/.002$). Finally, the direct effect of self as distinction on depressive symptoms was non-significant ($b = .06$, $p = .894$, $95\%CI = -.818/.937$).

Concerning model 2, the overall model also explained 35% of the variance of depression symptoms, and results show that depression symptoms in the overall model were significantly predicted by valued action ($b = -.15$, $p = .023$, $95\%CI = -.282/-.022$) and brooding ($b = .41$, $p = .001$, $95\%CI = .167/.648$), but not by behavioral awareness ($b = -.08$, $p = .058$, $95\%CI = -.166/.003$), nor by openness to experience ($b = -.06$, $p = .105$, $95\%CI = -.135/.013$). Indirect effect results show that the relationship between self as observer and depressive symptoms was mediated by behavioral awareness ($b = -.03$, $95\%CI = -.093/-.002$), valued action ($b = -.04$, $95\%CI = -.093/-.001$) but not by openness to experience ($b = -.03$, $95\%CI = -.091/.004$). Finally, the direct effect of self as observer on depressive symptoms was non-significant ($b = .15$, $p = .793$, $95\%CI = -1.313/1.004$).

Discussion

This study explored the utility of the SEQ as a self-as-context measure in the general population by examining its factor structure and psychometric validity. Additionally, and given the centrality of self-related processes in the etiology of depressive symptoms, we have examined the relationship between the two dimensions of self-as-context (as distinction and as observer) and depressive symptoms in a sample from general population, testing the mediational role of other related PF processes (i.e., openness to

experience, behavioral awareness and valued action) that are theoretically hypothesized as interconnected to self-as-context.

Results suggest that the SEQ is a psychometrically valid measure of self-as-context in the general population, corroborating the two previous studies in chronic pain samples suggesting it can be used as either a two-dimensional measure of self as distinction and self as observer (Yu et al., 2016), as well as a one global measure of self-as-context (Yu et al., 2017). However, it should be noted that the model with best fit to the data was obtained by removing three items (items 8, 12 and 15), which resulted in a 12-item final version of the SEQ. Indeed, this, to our knowledge, is the third study on the factor structure of the SEQ, and the first using a sample different than chronic pain, and it seems to be aligned with the ongoing discussion around the items composition of the SEQ. For example, although the original study found the SEQ to be a 15-item measure (Yu et al., 2016), a second study ended up excluding four items from analysis (items 6, 7, 9 and 10) (Yu et al., 2017). This raises the necessity to further study the structure and validity of the SEQ, in order to attain a consensual version of the questionnaire, including testing its measurement invariance across different samples. It is also worth noting that, although the translation process followed known guidelines (Erkut, 2010) for a culturally competent translation, some specific elements of the content of the items might have been lost in translation. A further study examining cultural measurement invariance (not only with the final pool of 15-items, but instead with the 29 initial items) should be conducted in order to better understand differences between the English and Portuguese versions. Nevertheless, the current results also show that the final 12-items version present construct validity, with good internal consistency, convergent validity and composite reliability, corroborating the assumption that the SEQ is a psychometrically valid measure of self-as-context.

Correlation results showed that the SEQ (total, as distinction and as observer) presented a pattern of significant associations with other PF processes conceptualized as openness to experience, behavioral awareness and valued action. This not only corroborates previous studies that showed SEQ is associated with PF processes (e.g., with pain acceptance and committed action) (Yu et al., 2016), but it also seems to echo previous results correlating proxy constructs of self-as-context and PF processes, such as decentering and general psychological flexibility (McCracken et al., 2014), and the observer facet of mindfulness and experiential avoidance (Bruin et al., 2012; Moran & McHugh, 2019). Also, this seems to corroborate the PFM assumption that all core processes underlying the model are significantly interconnected with each other (Hayes et al., 1999; Hayes et al., 2006). Although a similar study with a sample of adolescents studied

self-as-context and avoidance as a proxy of psychological inflexibility, this is, to our knowledge, the first study that tested the relationship between a measure specifically designed to grasp self-as-context, and the overall PF processes (conceptualized in three clusters of processes: openness, awareness and engaging/active) (Hayes et al., 2011). Interestingly, it should be noted that a differential pattern of associations was identified: while self-as-distinction was significantly correlated with valued action, self-as-observer was not. This seems to indicate that acting according to personal values is related to the ability to experience the self as a separate entity from self-related internal experiences, whereas valued action does not seem to be related with a hierarchical/observing experience of self, i.e., a sense of self where internal experiences occur. Additionally, results showed that self-as-context was significantly correlated with the brooding dimension of rumination. Although, to our knowledge, this association has never been previously examined, this result is in line with associations between proxy measures, such as decentering, and rumination (e.g., Andreotti et al., 2018; Lo et al., 2014). Also, self-as-context was significantly correlated with depressive symptoms, as previously shown (Moran et al., 2018; Yu et al., 2016), and in line with previous studies showing the relationship between self-as-context and psychological well-being (Atkins & Styles, 2016; Styles & Atkins, 2018).

Given these patterns of associations, as well as the theoretical proposition that a self-as-context stance towards experience is a crucial element related to openness, awareness and valued action (Hayes et al., 2006), we have tested a mediational model in which these three clusters of PF processes mediate the relationship between the two dimensions of self-as-context and depressive symptoms, while controlling for brooding. Results suggest that the relationship between a self-as-context stance [the ability to observe the ongoing experience (self-as-observer) as well as to experience the self as a distinct element from and where experiences occur (self-as-distinction)] and depressive symptoms is mediated by the ability to be behaviorally aware and to act according to personal values, but not by the ability to be open to experience. It seems that when it comes to depressive symptoms, the behaviorally-oriented aspects of PF are more relevant than the openness to experience the ongoing events. One can look at the mediating role of valued action through the lens of the overall literature on the role of behavior activation in depression: by engaging in actions that are guided by sources of vitality, a person increases their goal-oriented and positive rewards (e.g., Dimaggio & Shahar, 2017), thus impacting on depressive symptoms above and beyond pervasive processes such as brooding. Regarding the mediating role of behavioral awareness, it is in line with the overall PFM: the ability to have a stance to self that is not conceptualized and rule-governed, but rather one

that enables the flux of experience to occur, will potentiate present moment awareness of behavior (e.g. Hayes et al., 2006; Hayes et al., 2011), which in turn seem to be related to less depressive symptoms. Although it is theoretically puzzling that openness to experience did not seem to mediate the relationship between self-as-context and depressive symptoms, one may hypothesize that indeed to be aware of behavior and to be committed to engage in valued action might occur and impact depressive symptoms even when a person is somewhat unwilling to contact with difficult internal experiences. For example, a person might be behaviorally aware and task-oriented, as well as committed in valued action (e.g., enduring a time-consuming and potentially difficult academic task) without being necessarily open to experiencing difficult internal experiences (e.g., anticipation of failure, feelings of boredom). Interpreting this result should also have in mind a recent similar study that did not find a significant mediator effect of psychological inflexibility between self-as-context and depressive symptoms in a sample of adolescents (Moran & McHugh, 2019). However, while Moran and McHugh (2019) used the Avoidance and Fusion Questionnaire for Youth (AFQ-Y8; Greco et al, 2008), we have used the CompACT measure (Francis et al., 2016). Although the AFQ-Y8 is suggested to be a valid measure of psychological (in)flexibility, its items tap into the “avoidance” and “fusion” processes of psychological (in)flexibility, and does not grasp core processes of psychological (in)flexibility, such as those related to present moment awareness and valued action. By using the CompACT to measure psychological flexibility, we have overcome this limitation, given that CompACT measures the three overarching domains of psychological flexibility (Hayes et al., 2011): openness (*openness to experience*), awareness (*behavioral awareness*), and engagement (*valued action*). It is, nonetheless, interesting to note that *avoidance* was not a significant mediator in the Moran and McHugh (2019) study, as well as its theoretically conceptualized counterpart process (*openness to experience*: a willing and accepting stance to experience) was not significant in ours. Thus, our results regarding the non-significance of openness to experience seem to be in line with those of Moran and McHugh (2019). Further research should engage in a more in-depth analysis of these relationships, how they operate the relationship between a sense of self-as-context and depression, and which constitute the *sine qua non* conditions for these relationships to occur.

The current study is not without limitations. First and foremost, this is a cross-sectional study, thus to establish any causal relationship is unwarranted. It should be noted that self-as-context is an embedded core process in psychological flexibility, and present potential overlap with other processes (such as present moment awareness or defusion), which makes this study a potentially circular one: it may be the case that

behavior awareness and valued action may produce a higher sense of self-as-context. Thus, the current study should be replicated either by a time-lagged design, or a task-oriented experimental design (perhaps testing the role of different PF experiential processes on the impact of deictic relations of “I/Here/Now” versus “You/There/Then” on depressive symptoms). Additionally, although the sample size was sufficient for the rather simple model tested, the current study should be replicated with a larger sample size that would enable testing more complex models that would allow a more refined look into the relationship between variables (e.g., sequential mediation models, cross-lagged panel models). Also, although the final 12-items version of the SEQ was psychometrically valid, there still seems to be a need for more studies on the structure of the SEQ given that the three studies we are aware of ended up with a different number of items. Additionally, the current study did not correlate the SEQ with proxy measures, nor tested its incremental validity in predicting depressive symptoms. Future studies should test the relationship between the SEQ, decentering, the observer facet of mindfulness and other related meta-cognitive processes (Bernstein et al., 2015). It should also be noted that the SEQ factors presented weaker associations with depressive symptoms than the psychological flexibility dimensions did. Although the indirect effects were significant, it might have resulted from a statistical artifact given that the psychological flexibility dimensions were more strongly correlated with depressive symptoms.

This study contributes for the knowledge on the psychometric robustness of the SEQ, its use in the general population, and its relationship with the PF process (openness, awareness, and action) and depressive symptoms. The current results yield tentative clinical implications that, not only corroborates the PFM, but adds on previous literature. Although in need for further replication, these results seem to suggest that when addressing depressive symptoms, the development of a self-as-context stance may benefit from having as a therapeutic end-goal the awareness of the present moment and the commitment to engage in valued action, rather than per se increasing openness to experiences. It should be noted that future studies should not only replicate these results, but also explore different relationships between these variables. Specifically, our pattern of associations suggest that the SEQ is more strongly associated with depressive rumination (i.e., brooding) than with depressive symptoms. Future research should test the (mediation) role of psychological flexibility in the relationship between the SEQ and depressive rumination (brooding). Nevertheless, our results seem to suggest that clinical interventions that target depressive symptoms through valued based behavioral activation, as well as mindfulness-based behavior awareness, may benefit from including practices/exercises that promote a detached and observational stance towards the self. For

example, these might include metaphors which promote a sense of self that is the context, and not the concept, where experience occurs (e.g., the chessboard metaphor; see Hayes et al., 1999, pp. 190-192), or experiential exercises that help the client get in touch with a sense of “I” that is beyond the conceptualized narrative of the self, such as the observer self exercise (see Luoma et al., 2007, pp. 117). On the other hand, these results seem to suggest that self-as-context does not necessarily impact on depressive symptoms through openness to experience, which seem to indicate that a stance of openness (willingness/acceptance of difficult experiences) towards difficult experiences is not a necessary end-point of self-as-context practices to impact on depression. Rather than an overfocus on openness to experience, these results seem to suggest that awareness and valued action might be more beneficial when targeting depressive symptoms.

Data Availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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Compliance with ethical standards

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

Informed consent: Informed consent was obtained from all participants included in the study.

Table 1

Means (M), Standard Deviations (SD) and Intercorrelation scores between all study's variables (n = 172).

Measures	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. SEQ_Distinction	22.72	6.67	-							
2. SEQ_Observer	18.33	4.81	.66***	-						
3. SEQ_Total	45.05	10.47	.94***	.88***	-					
4. CompACT_OE	27.73	9.20	.36***	.37***	.41***	-				
5. CompACT_BA	16.85	6.70	.28***	.33***	.33***	.42***	-			
6. CompACT_VA	37.16	6.21	.20**	.15	.20**	.14	.28***	-		
7. Depression symptoms	4.28	4.29	-.18*	-.25***	-.23**	-.42***	-.39***	-.35***	-	
8. RRQ_Brooding	7.18	3.46	-.22**	-.32***	-.28***	-.60***	-.45***	-.19*	.50***	-
9. RRQ_Reflection	6.08	2.57	.14	.03	.12	-.18*	.02	.03	.36***	.42***

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

CompACT_OE = Openness to experience; CompACT_BA = Behavioral awareness; CompACT_VA = Valued action.

Table 2

Regression analyses of both models for depressive symptoms using PROCESS (Model 4) (n = 172)

	<i>b</i>	<i>SE</i>	<i>p</i>	LLCI	ULCI	<i>R</i> ²	<i>F</i>	<i>p</i>
Model 1						.35	17.486	.000
SEQ_Distinction	.02	.05	.726	-.08	.12			
CompACT_OE,	-.07	.04	.086	-.14	.01			
CompACT_BA	-.08	.05	.082	-.18	.01			
CompACT_VA	-.16	.05	< .001	-.25	-.07			
Brooding	.40	.10	< .001	.20	.60			
Model 2						.35	17.448	.000
SEQ_Observer	-.00	.07	.984	-.14	.14			
CompACT_OE	-.06	.04	.099	-.14	.01			
CompACT_BA	-.08	.05	.094	-.18	.00			
CompACT_VA	-.16	.05	< .001	-.25	-.10			
Brooding	.40	.10	< .001	.20	.60			

CompACT_OE = Openness to experience; CompACT_BA = Behavioral awareness; CompACT_VA = Valued action.