Self-assessment of patterns of subjective experience: development and psychometric study of the States of Mind Questionnaire

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ABSTRACT

States of mind are forms of subjective experience that involve cognitions, emotions, needs, desires and physical sensations, subjectively, some charged with emotional suffering and some charged with well-being. This study presents a new questionnaire designed of States of Mind Questionnaire (SMQ), focused on the self-assessment of recurring patterns of subjective experience. We first review the literature leading to the development of SMQ and then we investigate its psychometric properties. We conducted an exploratory factor analysis (EFA), internal reliability, inter-correlations between subscales, test-retest reliability, convergent and divergent validity. Finally, we explored the relationship between states of mind and symptoms. The sample was composed of 427 individuals (M age=32; SD=11.49). EFA did not showed a theoretically coherent structure. Internal consistency was good for the 24 subscales (Cronbach's α of 0.62 to 0.96) and test-retest reliability was adequate. States of mind converged and diverged with maladaptive schemas and predicted symptomatology. Overall results indicate that SMQ may be a valuable tool to help clinicians and patients to assess different and diverse states of mind. However, more research it is required to explore and enhance SMQ psychometric properties in non-clinical clinical groups and in psychotherapy outcomes.

Key words: States of mind; questionnaire; psychometrics; construct validity; symptomatology.

Introduction

Understanding clients' subjective experiences is the key to case formulation and treatment planning. As clinicians become aware of how people construct the meaning of their lives and social events, it becomes easier to share with clients interventions designed to soothe emotional suffering, shifting perspectives and developing new values and beliefs, leading them to a healthier and more flexible forms that facilitate the regulation of psychological needs. Humans make meaning of inner and external experience thanks to a series of concepts, which may be expressed as cognitions - including ones about values or interests - or emotions (Bannister, 1977; Feixas, Geldschläger, & Neimeyer 2002; Kelly, 1955; Neimeyer & Mahoney, 1995; Walker & Winter, 2007). Inspired by George Kelly, Mardi Horowitz (1987) noted that consciousness constructs tend to cluster together in recurrent forms of subjective experience, named *states of mind* or *mental states*.

According to Horowitz (1987), *states of mind* are forms of subjective experience which cluster or *activate* together mental elements such as cognitions, emotions, needs, desires and/or somatic sensations, that motive action tendencies and behavior. For instances, one may be in a state of safeness and relaxation, when playing in the garden with kids, and suddenly one becomes worried, feeling responsibility and impotence about something that one is supposed to solve but fears not being able to do so - just after receiving a work-related phone call. Some states of mind are contextual, somewhat free from pre-existing patterns. For example, a young woman may be having dinner with friends and she may mentally represent (construct) others as fun *vs* boring and may feel a sense of connection and at ease, while detecting commonalities. Conversely, she may feel embarrassed or excluded as she realizes the dinner mates are not particularly friendly. As dinning with other people, she may have different experiences, which appear to be context-specific - at some extent.

States of mind encompass different forms of mental elements, which means that different conceptualizations may be used to organize how these elements are described. The notion of schema is one of the most used con-

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Citation: Faustino, B., Vasco, A.B., Dimaggio, G., da Silva, A.N., & Seromenho, S. (2020). Self-assessment of patterns of subjective experience: development and psychometric study of the States of Mind Questionnaire. *Research in Psychotherapy: Psychopathology, Process and Outcome*, *23*(3), 320-340. doi: 10.4081/ripppo.2020.465

Received for publication: 25 May 2020.
Revision received: 28 August 2020.
Accepted for publication: 12 September 2020.

Research in Psychotherapy:
Psychopathology, Process and Outcome 2020; 23:320-340
doi:10.4081/ripppo.2020.465

ceptualizations for cognitions with a *trait* perspective and is used in different theoretical models (Faustino & Vasco, 2020a, b). Schemas are typically defined as a mental structure composed of memories, cognitions, emotions and beliefs that have a *trait* predisposition (Dimaggio, Montano, Popolo, & Salvatore, 2015; Young, Klosko & Weeishar, 2003). Schemas are viewed as *traits* and states of mind are viewed as *states*. However, they are related because, states of mind encompass to some extend several cognitive or affective elements, which means, that they may contain cognitive and affective schemas. Thus, early maladaptive schemas (EMS) and emotional processing difficulties (defined as states) were previously correlated in non-clinical (Faustino *et al.*, 2019) and clinical samples (Faustino & Vasco, 2020c) which means t*raits* and *states* may have several underlying concomitant relationships.

Following Horowitz (1987) different traditions - such as cognitive analytic therapy (Ryle & Kerr, 2002), metacognitive interpersonal therapy (MIT; Dimaggio, Semerari, Carcione, Nicolo, & Procacci, 2007; Dimaggio *et al.*, 2015) and Schema Therapy (Young *et al.*, 2003) - have explored how people with psychological disorders tend to experience recurrent mental states, *i.e.* specific patterns of thoughts, feelings, somatic sensations, and behavioral dispositions, independently from the context. For example, another young girl in the same dinner may feel judged, excluded, experience shame and alienation and the pattern might repeat itself over time and across different groups.

Other approaches have adopted similar concepts as Horowitz reading of Kelly's ideas. For instances, Interpersonal Neurobiology (Siegel, 2012) and Paradigmatic Complementary Metamodel (PCM, Conceição & Vasco, 2005; Vasco 2001, Vasco, Conceição, Silva, Ferreira, & Vaz-Velho, 2018). States of mind may be of different kind, some are adaptive and loaded with positive effects, others are filled with dysregulated negative emotions and subjective suffering (Dimaggio *et al.*, 2007, 2015; Young *et al.*, 2003). Possibly states of mind are underpinned by patterns of activation in the brain at a moment, sustaining in mind, a perceptual bias, an emotional tone and regulation, memory processes, mental models and behavioral response patterns (Siegel, 2012).

Albeit differences among the above-described approaches, they all share the idea that case formulation must include an assessment of the recurrent form of subjective experiences (*i.e.*, emotions, beliefs, feelings) and of the typical conditions that trigger transitions from one state to the other (Dimaggio *et al.*, 2015; Ryle, 2005). Assessing typical mental states is very valuable for case formulation and treatment planning because it allows the clinician and client to understand and explore causal activations of patterns (adaptive or maladaptive) of subjective experience. These patterns may then be targets of psychological intervention. Therefore, assessment instruments are much needed, to have a reliable and comprehensive evaluation of what clients typically experience. Self-reported measures may complement observational scales by giving an initial assessment of the states of mind of the patient and could also be used to assess change during therapy. Moreover, they are also cost-effective in regarding to existing grids, but clinicians could use both to understand patients states of mind in psychotherapy. Although only few attempts were made to develop a measure focused on the assessment of moment-to-moment states.

Pollock, Broadbent, Clarke, Dorrian and Ryle (2001) developed the Personality Structure Questionnaire (PSQ) based on the Multiple Self-States Model (MSSM). However, the PSQ was based on the notion of identify' disturbance which measures dissociation, control or mood changes. Despite its usefulness and good psychometric features, it does not capture states of mind, but rather a set of features related to integration/dissociation of the self.

Semerari *et al.* (2003) developed the Grid of Problematic States (GPS), to assess recurrent patterns of subjective experience in patients' verbalizations, *e.g.* session transcripts. Through case analysis, authors demonstrated that the GPS could reliably assess disorganization and the development of stable clusters of thought themes, emotions, and somatic sensations. Dimaggio *et al.* (2008) through GPS identified that dominant/recurrent states of mind of three patients with narcissist personality disorders were characterized by anger, feeling excluded from groups, feelings of being harmed, and distrust toward others. Research on states of mind is to date only based on a few single cases (see Carcione, Semerari, Dimaggio, & Nicolo, 2008), which prevents generalization of findings, because of the lack of a standardized questionnaire. Therefore, adopting a self-report measure and applying it to larger samples is a way to deal with this limitation.

Lobbestael, Vreeswijk and Arntz (2008) elaborated the Schema Mode Inventory (SMI) and found strong associations between modes and personality disorders (Lobbestael, van Vreeswijk, Spinhoven, Schouten, & Arntz, 2010). Schema modes were associated with paranoid, histrionic, narcissistic, dependent, avoidant and obsessive-compulsive personality disorders (Arntz, Klokman, Sieswerda, 2005; Bamelis, Renner, Heidkamp & Arntz, 2011). In a sample of non-diagnosed subjects, SMI was higher in people above vs below a clinical cut-off (Pereira, 2009). However, the concept of schema mode it is still in underdeveloped and SMI has some validation issues that must be addressed (Lobbestael, Vreeswijk, Spinhoven, Schouten & Arntz, 2008).

An important theoretical distinction should be made between schema modes and states of mind. Schema modes are the moment-to-moment emotional states that encompass one or more early maladaptive schemas and a one or more crystallized coping strategy to cope with those schemas (Young, Klosko & Weeishar, 2003). States of mind are forms of subjective experience that involve cognitions, emotions, needs, desires, and physical sensations that manifest together in consciousness (Horowitz, 1987).

Both constructs are similar in the *trait-state* difference because they are states that encompass some mental elements such as cognitions and emotions. However, we believe that schema modes are more associated with *operant* and external behavior and states of mind are more concerned with experiential and internal subjective experience. Nevertheless, this distinction is based on this theoretical assumption and may be explored in subsequent studies.

Dimaggio *et al.* (2015) proposed a classification of states of mind in three categories: i) states filled with suffering and distress; ii) states searched for the purpose of coping with suffering; iii) states for the sake of value and identity. These are named: *painful and fearful states*, *coping states,* and the *ego syntonic states*.

Painful and fearful states reflect fragile, vulnerable, suffered, weak or painful aspects of the self*,* which people try to tone down, avoid or dissociate. *Coping states* are aimed at dealing with distressful thoughts, feelings, sensations, and interpersonal situations. *Ego syntonic states* are actively pursued because they are pleasant or are very central for defining identity or preferred goals (Dimaggio *et al.*, 2015). States are described in Table 1 and grouped by category (for further details, see Dimaggio *et al.*, 2015). Despite its potential utility, this classification remains untested.

As stated before, different approaches emphasized different aspects of states of mind and associate them with other theory-driven' constructs. For instances, paradigmatic complementary metamodel (PCM, Vasco 2001, Vasco *et al.*, 2018) emphasize the construct of psychological needs. Psychological needs are *states* of mental *disequilibrium* caused by excess or lack or certain psychological nutrients, signaled emotionally, which promotes behavioral tendencies. Thus, according to PCM framework the regulation of psychological needs is the cornerstone of mental health (Faustino & Vasco, 2020a, b, c; Vasco *et al*., 2018). In this sense, psychological needs are conceptualized as instances of the *self* and as core constructs to case conceptualization and clinical decision making. However, the relationship between states of mind with psychological needs remain untested.

Furthermore, emotion-focused therapy (EFT, Greenberg, 2015, 2017) also uses concepts of emotionally laden states of mind. In EFT adaptive mental states are the endpoint of processes based on a marker-guided intervention. Interventions such as empathic affirmation, experiential focusing or empty chair work aims to facilitate the emergence of adaptive mental states of self-acceptance/integration, self-affirmation, or understanding/forgiveness (Greenberg 2015, 2017).

Considering the clinically relevance of mental states, the abovementioned interventions focus, on the one hand, on the alteration of patterns of thoughts and feelings filled with suffering or maladaptation - easing the distressful states and leading to coping mental states. On the other hand, these interventions may evoke adaptive mental states, by promoting psychological flexibility, mindfulness, and self-compassion, disentangling the *self* from experiential avoidance, and promoting self-soothing (Gilbert, 2010; Hayes Strosahl, & Wilson, 2011).

In sum, it is our argument that identifying recurrent patterns of subjective experience is key to case formulation and it is helpful to evaluate the therapeutic process and outcomes. Nevertheless, to the best of our knowledge only two different measures were built to access states of mind, in psychotherapy. Therefore, in this research we aim to develop and test a self-report assessment of states of mind, that help clinicians to briefly assess patients recurrent elements of subjective experience and to be used in the psychotherapy process and outcome studies.

Aims and hypothesis

According to previous conceptualization our study has the following aims: i) to describe the development and the psychometric properties (internal consistency, test retest, convergent, divergent and discriminant validity) of a questionnaire aimed to assess states of mind; ii) to explore the relationships between states of mind and symptomatology, which is a complement of convergent validity.

Regarding the first aim, as stated before, states of mind also encompass schemas, which lead us to expect that some states of mind may be correlated with early maladaptive schemas (EMS). It is expected that EMS and states of mind may be associated, because states of mind encompass maladaptive schemas in their nature and that is why that the construct of schema was selected for validation procedures of the SMQ. Therefore, to establish convergent validity, we expected that states of mind of abandonment, affective neglect, and social isolation, fear of judgment/shame, self-criticism/pessimism, constriction/injustice, grandiosity, workaholism/perfectionism, and attention-seeking/superiority were positively correlated with thematic related EMS (*e.g.*, abandonment/instability, entitlement, attention-seeking, unrelenting standards). In terms of divergent validity, we predicted that self-care states were negatively correlated with early maladaptive schemas and schema domains.

The second aim was to explore the relationship between mental states and symptoms, within a validity perspective. Regarding this goal, we predicted that distressful and coping mental states were associated with heightened symptoms levels (hypothesis 1). We have also predicted that distressful and coping states explained variance in symptomatology (hypothesis 2). Finally, we expected that adaptative states were negatively associated with symptoms and predicted symptoms variance (hypothesis 3).

Materials and Methods

Participants

Participants were recruited online, through social media (Facebook, LinkedIn, and email). They filled three

self-report scales adapted to the Portuguese population along with sociodemographic data. General exclusion criteria were age <18 and <80, non-Portuguese speaker and neurodegenerative disorders such as Alzheimer, Parkinson, or frontal-temporal dementia. Total sample was composed by 427 individuals that completed the SMQ, but only 324 had completed the entire protocol. In this sense we used the total sample to test internal consistency. We contacted 100 random participants to do test-retest reliability, however, only 70 accepted to perform the retest. We used 324 individuals for convergent and divergent validity. Missing data for seven participants in YSQ was handled with mean imputation procedures (Enders, 2010).

Of the 427 participants, 19.4% were male, 80.6% female. Mean age of the sample was 32 years (SD=11.49, range 18-67). Most were Portuguese (96%), 2.6% Brazilian, 1.4% had another nationality. Three percent had primary school or 9-year equivalent, 21.8% completed secondary education, 44% completed a bachelor's degree, 28.1% completed master and 3% completed a doctoral degree. Of the 136 participants in the clinical sample, 51% did not receive any treatment, 57% were in psychotherapy, 8.1% were seen by a psychiatrist, 7.3% had psychotherapy and psychiatric treatment and 5.4% other forms of treatment. Diagnostics were self-reported, 57% percent of participants report no diagnosis, 8.1% had de-

Table 1. Transtheoretical states of mind.

Feared. Suffered or distressing states (vulnerable self)	**Brief description**
Abandonment/non-lovability	Beliefs and feelings of abandonment, loneliness, and non-lovability
Alienation/group exclusion	The feeling of being different and excluded from social groups
Vulnerability/relational danger	The subjective experience of vulnerability, weakness, and fear of others
Unworthiness/fear of judgement/shame/imperfection	Perception of defects, shame, and embarrassment in the face of the expected criticism of others
Moral guilt and survivor's guilt	Moral blame for the transgression of rules, incapacity or hurt of others
Constriction/injustice/ submission	Feelings of constriction, subjugation, and oppression against the will of others
Negligence/affective frustration	Deep affection negligence continued in time associated with expectations of being never loved, even in relationships
Invalidation/ self-criticism / punishment	Feelings of self-criticism and invalidation with a tendency towards self-punishment. A pessimistic view of others
Coping states (coping self)	**Brief description**
Mistrustfulness	Hypervigilance and apprehension related to others perceived as malicious and humiliating
Self-protective anger/opposition to an oppressor/rebellion	State of reactive rage in the face of perceived attack and threat to the self, or to their relationships
Devitalized emptiness	Feelings of emptiness, coldness, apathy and emotional pain
Avoidance/protective isolation	Feelings of impotence and avoidance as a form of protection
Compliance/sought-for subjugation	Feelings of submission and forms of complacency in order to avoid conflict, confrontation, hurt or abandonment
Workaholism/perfectionism/overload	Deep convictions of perfectionism and performance
Idealization/ideal protector	Fantasies of finding the ideal caregiver in order to feel comfort and security
Stupefaction/self-alienation	State where the individual intends to alienate from his emotional distress and psychological pain
Ego syntonic states (valued self)	**Brief description**
Grandiosity	State of superiority feelings and beliefs
Moral superiority/critical judgement	Feelings to be fair, correct and morally superior
Status seeking/territoriality/consolidation	An extreme need to dominate others through status, and status seeking
Pleasure-seeking/hedonism	Extreme need for pleasure and fun
Self-care states (healthy self)	**Brief description**
Attachment and belonging/interpersonal safeness	State of connectivity and feeling of belonging with others
Self-trust and integrity/assertiveness	A sense of cohesion, self-reliance, and integrity
Acceptance and forgiveness/mindfulness	State of Self-acceptance and mindfulness
Self-worth and compassion/emotional fulfillment	The state of self-compassion and emotional fulfilment

pression, 6.6% depression and anxiety, 4.4% generalized anxiety disorder, 3.7% undifferentiated anxiety disorder, 2.7% panic disorder, 1.4% obsessive-compulsive disorder, 1.4% bipolar disorder. Other diagnosis occurred in the non-significant percentage of the cases.

Materials

Construction of the States of Mind Questionnaire (SMQ) followed several steps, from states of mind definition, item development, self-care states items development and pre-test for vocabulary representativeness (Figure 1).

Step 1. States of mind and states of mind domains (also called self-domains)

Based on descriptions of mental states, schematic modes and needs, found in the literature of integrative psychotherapy (MIT, Dimaggio *et al.*, 2003, 2015, ST, Young *et al.*, 2003; PCM, Vasco *et al.*, 2018), 20 mental states were elaborated (Table 1). Three categories of states of mind were created*: Feared, Suffered* or the *Distressing states*, the *Coping states,* and the *Ego syntonic states* (Table 1).

Step 2. Items development

Five dimensions were defined for each mental state, to capture the largest number of subjective contents representative of each state: cognition, affect, physiological, behavioral, and interpersonal. Then, three items of each dimension type (*e.g.*, cognition, affect…), were elaborated obtaining a total of about 315 items in a total pool. Physiological items were not used due to their similarities across different states of mind. Next, items were selected, representing each state of mind according to the literature,

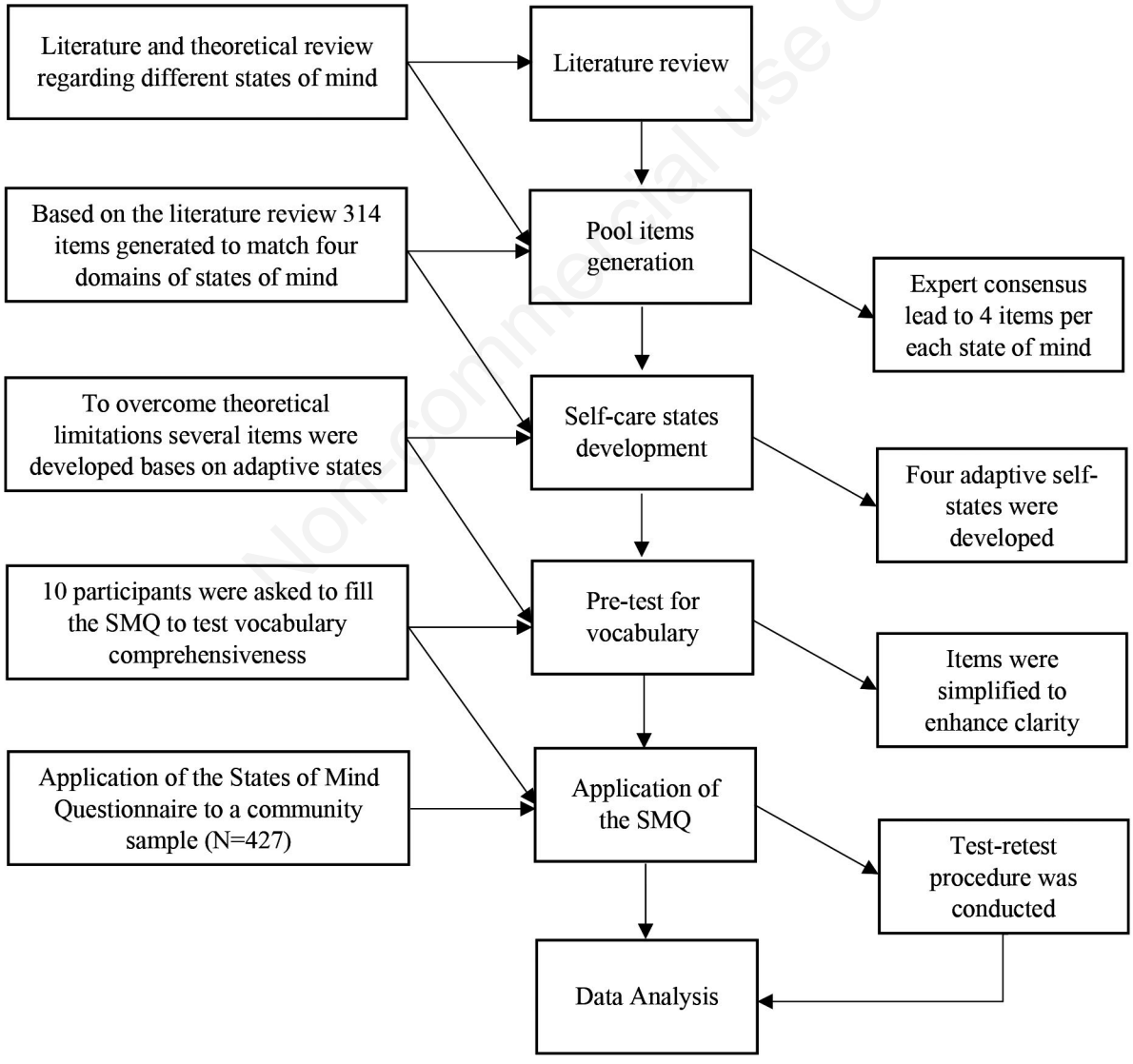

Figure 1. Flow chart regarding States of Mind Questionnaire (SMQ) development.

with each mental state with 4 items, making a total of 84 items of the general scale. Based on the expected theoretical state of mind, each author rated for each state 4 items that were expected to better represent that state of mind, within four dimensions (*e.g.*, cognition, affect…). One example is the mental state of *Abandonment/Non-lovability*, with the items: *1 - I feel abandoned, alone and without value; 22 - I fell the angst of rejection and abandonment; 43 - I don't deserve to be loved, so people abandon me, reject me or trade me something better; 64 - I feel like I'm going to end up alone and with no one to give me love.* Items were selected through expert consensus on each type of state of mind.

Step 3. Self-care states items development

A fourth category based on EFT (Greenberg, 2017), ACT (Hayes *et al.*, 2011), CFT (Gilbert, 2010) and PCM (Vasco *et al*., 2018) was created and named *Self-care states*, that encompass four adaptive states of mind: *attachment and belonging/interpersonal safeness*, *self-trust and integrity/assertiveness*, *acceptance and forgiveness/mindfulness*, and *self-worth and compassion/emotional fulfilment*. This category was developed to capture adaptive parts of the self that tend to be forgotten in psychological assessment scales. Four self-care states were built with standard items 21,63,42,84 (one for each state), and reversed items from different subscales to match the opposite side of distressful/painful or coping mental states. Each adaptive state had four items. Therefore, self-care states are opposed to some distressful and coping states. One example of a standard and reversed items is presented in the *Acceptance/Mindfulness* self-care state. A standard item could be the 84 - *I can understand and satisfy my needs as a person.* A reversed item could be the item 4 - *I'm ashamed of being bullied and humiliated by my imperfections.*

Step 4. Pre-test for vocabulary representativeness.

Before the presentation of SMQ to the general population, a pilot study was made with 10 individuals randomly (Female=6, M age=26.6), strangers to the SMQ, to test the final form of items in terms of vocabulary, language structure and comprehension of constructs.

Following these procedures, the *States of Mind Questionnaire* (SMQ) was developed. SMQ is a self-report instrument, that aims to assess states of mind, within a 6-point Likert scale, ranging from 1 (False) to 6 (True). The four subscales *suffered* and *feared*, *coping*, *ego syntonic* and *self-care states*, were represented by a final list of 24 mental states. It is assumed that individuals with higher scores on each scale of subscale, represent the magnitude or intensity of the pervasive presence of states of mind.

Step 5. Application of the States of Mind Questionnaire

The SMQ was available on-line to the general population to initiate the psychometric study.

Instruments

Young Schema Questionnaire (YSQ - S3, Young, 1999, translated and adapted by Rijo, 2009, 2017) is a self-report measure designed to evaluate eighteen early maladaptive schemas (EMS). It has 90 items, with a Likert scale ranging from 1 (not describe me at all) to 6 (describe me fully). This instrument has eighteen subscales referring to the eighteen EMS (five items per subscale), which are grouped into five schematic domains. In the study by Rijo (2009), this scale showed adequate reliability (α=0.967). In the present study, internal consistency was considered acceptable (n=324, α=0.985).

Brief Symptoms Inventory (BSI - 53, Derogatis, 1993; Portuguese version Canavarro, 1995) is a measure to assess psychopathological symptoms with 53 items on a 5-point Likert scale ranging from 0 (never) to 4 (many times). In the original study, this scale has high internal consistency (α=0.90). In the present study, internal consistency was high (n=324, α=0.976).

Procedures

Participants were tested individually, and they had a maximum period of 2 days to complete the battery. After reading the instructions individuals were asked to give informed consent. Then, after a 4-week period, one email with a link to test-retest procedure was sent. All participants signed informed consent and did not receive any compensation for participation. The study was approved by the ethics committee of the Faculty of Psychology of the University of Lisbon.

Data analysis

First, an exploratory factor analysis was run. Then reliability and validity procedures were used in the current study. Internal consistency was assessed with Cronbach alpha. Frequencies, percentages, ranges, means, and standards deviations were conducted for data description. Pearson product-moment correlation coefficient was used to test convergent and divergent validity between SMQ and *Schemas* (YSQ - S3). Finally, Pearson correlations, linear and stepwise regression analysis were conducted to explore the relationship between mental states and symptoms. Statistical analyses were performed in IBM SPSS Statistics version 24.

Results

Exploratory factor analysis with varimax extraction

Total sample (N=427) was used in exploratory factor analysis (EFA) to assess dimensionality of SMQ (Table 2). Extraction of all factors with eigenvalues higher than 1 through Varimax rotation was performed. We found 16 factors extracted which explained 65.04% of the total variance. We removed items below .30, due to few iterations and ab-

sence of spurious factors. The solution converged in 25 interactions. The Kaiser-Meyer-Olkin measure presented was 0.942 revealing a good correlation between the variables (Pestana & Gageiro, 2008). The Bartlett sphericity test was also statistically significant [χ^2 (3486)=22852.857 P<0.000], which reveals that the variables are correlated within (Pestana & Gageiro, 2008).

The first factor explains 60,1% of the variance and encompass items of suffered states a*bandonment/non-lovability* (items 1-22-43-64), *social isolation* (2-23-44-65), *vulnerability/social danger* (3-45-66), *shame/fear of judgment* (4-46), *injustice/constriction* (6), *affective frustration* (7-28-49-70) and *invalidation/self- criticism* (8-29). Also, this factor encompasses coping states of mind of *devitalized emptiness* (11-32-53-74), *avoidance/protective isolation* (12-33-54-75), *mistrustfulness* (9) and *self-alienation* (37-58-79). The negative saturated items (21-42-63-84), will be used to build the sub-scales regarding the self-care states of mind.

Factor two explained about 6% of the variance. The factor mixed items from *vulnerability/social danger* (24)*, injustice/constriction* (27-69) and *shame/fear of judgment* (25-67).

Table 2. Exploratory factor analysis of the States of Mind Questionnaire with varimax rotation.

	Factor															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
11. I feel empty and lifeless.	0.831															
74. The empty place inside of me gets th urge to do things from my everyday life.	0.790															
1. I feel abandoned, alone and without value.	0.742															
32. I am distressed by feeling empty and lifeless.	0.734															
42. I feel calm, relaxed, confident and at peace with myself.	–0.727															
21. I feel loved, understood, and accepted by the people around me.	–0.725															
63. I feel deep emotional well-being, and this is reflected positively in the relationship that I have with other people.	–0.711															
64. I feel like I am going to end up alone and with no one to give me love.	0.68	3														
53. I am apathetic and numb/the emotionally, because I do not feel anything	0.654															
44. I feel different and deleted by the people.	0.638															
49. I have no one to share my feelings.	0.599															
23. I cannot connect to other people.	0.583															
84. I can understand and satisfy my needs as a person.	–0.567															
75. I isolate myself to fell protected and safe from others	0.565															
43. I do not deserve to be loved, so people abandon me, reject me or trade me something better.	0.550															0.350
7. I have never had and will never have the love, affection, and love that I need in my relationships.	0.549															
2. I have great difficulty in identifying with someone.	0.541															
66. I feel weak, vulnerable, and fragile, so I can't defend the other.	0.536	0.493														
58. Consuming substances (*e.g.*, alcohol, drugs, medication) is something that I do to not to feel the emotional pain of my troubles.	0.535															
46. The shame and embarrassment that I feel about my imperfections lower my self-esteem.	0.524															

To be continued on next page

Table 2. Continued from previous page.

	Factor															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
37. I can't tolerate my troubles, so I do things for my own amusement (*e.g.* eating, watching tv, drinking alcohol, play computer).	0.514															
22. I feel the angst of rejection and abandonment.	0.503															
70. People are indifferent to my emotional needs.	0.502															
28. I'm a person lacking in affection, love, attention, and support.	0.484															
8. I criticize myself for things that think, feel and do.	0.462															
3. I feel anxious and unable to cope with stronger people than I.	0.461	0.461														
79. The only way of supporting my anguish is through making other things to distract me.	0.457															
6. I feel oppressed, crushed, and/or overwhelmed by certain/people.	0.454															
45. People do not respect me and go beyond my limits and invade my personal space without my permission.	0.451	0.441														
54. I feel ashamed for isolating me and out of relationships, but security too.	0.428															
71. I feel that what I think is wrong and I deserve to be punished	0.416												–0.392			
4. I'm ashamed of being bullied and humiliated by my imperfections.	0.373											0.367				
9. I'm suspicious of the intentions of others.	0.372															
65. I'm very different from people I know.	0.371															
16. I try to ignore my emotions when they become unbearable.																
69. Not to get in trouble, but the decisions and wishes of others.		0.812														
55. I subjugate myself to desires of certain people to avoid confrontation.		0.779														
34. Let others impose their wills before mine.		0.685														
27. I am a victim of injustice, but do not have the strength to rebel.		0.506														
67. I'm afraid/embarrassed that others think I'm a fraud.	0.463	0.477														
24. The others are threatening, and they make me feel weak, fragile and vulnerable.	0.407	0.468														
13. If I do not agree with others, I will suffer the consequences (rejection, criticism, judgment).		0.444														
76. Give up on my goals and desires when they are contrary to the goals and desires of others.		0.417														
25. I'm afraid that others see me as I am and criticize my imperfections.	0.408	0.413										0.361				
26. I suffer to feel privileged.																
31. React with anger when I feel like I want to hit, coerce, subjugate and/or humiliate.			0.714													

To be continued on next page

Table 2. Continued from previous page.

	Factor															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
10. I react with outbursts of rage when I feel offended and/or attacked.			0.679													
52. Defend me from the others through my anger and aggression.			0.659													
73. I can't keep my mouth shut and/or calm when I feel threatened or attacked.			0.563													
48. I feel a deep rage who forces me to do what I don't want.			0.408													
51. I'm apprehensive, nervous and vigilant when I feel like I want to cheat, humiliate, cheat or hurt me.			0.361													
5. I blame myself for hurting some people.				0.754												
68. I hurt some people in the past and I feel terrible about it.				0.636												
29. Usually, punish me for my actions.				0.466												
47. I feel guilty/the morally for having infringed rules.				0.437												
61. I do everything in my power to keep my social status.				0.762												
19. For me to reach a high social status is very important.					0.717											
82. Having power and high social status is part of my identity.					0.717											
81. I feel like I'm fair and that I make a few flaws, so people with immoral behaviors must be severely punished.					0.441											
60. If people fail is because of a lack of principles and/or moral values and deserve to suffer the consequences.					0.406											
77. I have to be perfect in everything I do.						0.809										
56. I always have to have the best possible performance.						0.774										
14. I feel fear, shame and/or irritation when I can't be perfect.						0.485										
35. I feel overwhelmed, but I can't stop working.																
38. I feel like I have more value than others.							0.739									
17. I am superior to other people.							0.580									
80. I feel I belong to the elite and deserve special status.					0.374		0.483									
40. I like to feel power over people.							0.474									
39. My values should be shared by all.																
62. I'm always looking to have fun and enjoy.								0.753								
20. I have an almost uncontrollable need to seek pleasure.								0.581								
41. Having fun is more important than work.								0.521								
83. When I want to have fun or experience pleasure does not care what others think or say.								0.446								
72. I've been mistreated and betrayed in the past, so I have to be alert at all times.									0.567							

To be continued on next page

Also, it has items from coping states of *subjugation* (13-34-55-76). The third factor explains 3,56% and has items of the suffered state of *injustice/constriction* (48) and the coping state of *self-protective/anger* (10-31-52-73) (5 items). The fourth factor explains 2.63% of the variance with items from suffered states of *moral guilt* (5-47-58) and *invalidation/self-criticism* (29) (4 items). The fifth factor explains 1.99% of the variance with items from ego syntonic states of *status-seeking* (19-61-82) and *moral superiority* (60-81) (5 items).

The sixth factor explains 1,92% of the variance and it encompass item from the coping state of *workaholism/perfectionism* (14-56-77) (3 items). The seventh factor explains 1.77% of the variance and has items from ego syntonic states of *grandiosity* (17-38-80) and *status-seeking* (40) (4 items). The eight factor explains 1.59% of the variance and has 4 items of the ego syntonic state of *pleasure-seeking* (20-41-62-83).

The ninth factor explains 1,29% of the variance with 2 items of the coping state of *mistrustfulness* (30-72). The tenth factor explains 1.18% of the variance and has 3 items of the coping state of *idealization/ideal protector* (15-36-78). The eleventh factor explains 1.10% of the variance and has two items of the coping state of *avoidance/proactive isolation* (12-33). The twelfth factor explains 0.86% of the variance with one item of egosintonic state of *moral-superiority* (18) and two negative items of the suffered state of *invalidation/self-criticism* (50-71).

The thirteenth factor explains 0.85% of the variance with two items from suffered state of *shame/fear of judgment* (4-25). The fourteen-factor explained 0.84% of the variance and it has only one item of ego syntonic state of *idealization* (57).

The fifteenth factor explained 0.83% of the variance and it has only one item of ego syntonic state of *grandiosity* (59). The sixteenth explains 0.79% of the variance with one item of *abandonmen*t. Items 16, 26, 35 and 39 did not saturated in any factor and were dropped.

Sub-scale development according to exploratory factor analysis

These results of the EFA were different to some extent from the theoretical assumptions which was expected because of the functional aspect of the scale (Table 3). Nevertheless, the factor one resembles the suffered self-states of mind with the frequent coping states associated. Thus, it explained about 60% of the variance encompassing items from suffered and coping states of mind. This result is expected in EFA within these constructs which may be viewed as the high distress factor. To match equality sub-scales (4 items per subs-scale), some factors were fused according to similarities of items.

Internal consistency

Internal consistency of the total SMQ scale (without reversed items, α=0.958, and with reversed items α=0.917), was good. For sub-scales, the Cronbach alfas (Table 4), ranged from weak (α=0.622) to excellent (α=0.955). The four main sub-scales of vulnerable, coping, ego syntonic and self-care states, showed excellent and good internal consistency. Most of the sub-scales

Table 2. Continued from previous page.

	Factor															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
30. If I'm not aware/cannot be betrayed and/or mistaken by some people.									0.566							
78. I feel vulnerable, frail and weak when I have someone strong and able to take care of me.	0.414	0.361								0.588						
15. I need someone strong, safe and able to protect me and take care of me.										0.540						
36. I fantasize about someone very special to take care of me.										0.365						
33. I feel relieved and safe when I avoid hreatening situations.											0.504					
12. Avoid situations and/or people who consider threatening.											0.386					
18. Be an example in respect of moral valuesis part of me													0.544			
50. I deserve to be punished for what I think, feel and do.													–0.504			
57. Someday I will find the one for me.														0.381		
59. The admiration of others is very important to feel special.															0.454	

ranged from good to satisfactory coefficient alfas. However, sub-scales of moral guilt, idealization, grandiosity, moral superiority, and pleasure-seeking showed weak internal consistency (Pestana & Gageiro, 2008).

Test-retest

In a sub-sample of 70 participants, SMQ was re-administered again in 4 weeks, with a maximum interval of 3 days. Participants only responded to SMQ. This subsample was composed by respondents from the community, 15 (28.8%) male, 55 (76.4%) female, with a mean age of 31.61 (*SD*=10.37, 18-59).

Table 5 shows means and standard deviations for baseline and test-retest measures of all mental states, along with paired samples *t*-tests. Person test-retest correlations for the subscales of SMQ with theoretical structure are also given. All correlations were statistically significant and positive, raging form moderate (r=0.606) to good (r=0.768). These results indicate moderate to good temporal stability for almost all the mental states.

Construct validity

We tested construct validity through *Person's* intercorrelation matrix and corrected item-total correlations between states of mind and self-domains. All correlations were statistically significant within domains and respective sub-scale ranging from low (r=0.225) to high (r=0.920) (Table 6).

Convergent validity

We explored whether predicted associations among thematically related states and schemas would be present.

Table 3. Sub-scales and items.

Feared. Suffered or distressing states (vulnerable self)	**Items**
Abandonment/non-lovability	1 - 22 - 43 - 64
Alienation/group exclusion	2 - 23 - 44 - 65
Vulnerability/relational danger	3 - 24 - 45 - 66
Unworthiness/fear of judgement/shame/imperfection	4 - 25 - 46 - 67
Moral guilt and survivor's guilt	5 - X - 47 - 68
Constriction/injustice/submission	6 - 27 - 48 - 69
Negligence/affective frustration	7 - 28 - 49 - 70
Invalidation/self-criticism/punishment	8 - 29 - 50 - 71
Coping states (coping self)	
Mistrustfulness	9 - 30 - 51 - 72
Self-protective anger/opposition to an oppressor/rebellion	10 - 31 - 52 - 73
Devitalized emptiness	11 - 32 - 53 - 74
Avoidance/protective isolation	12 - 33 - 54 - 75
Compliance/sought-for subjugation	13 - 34 - 55 - 76
Workaholism/perfectionism/overload	14 - X - 56 - 77
Idealization/ideal protector	15 - 36 - 57 - 78
Stupefaction/self-alienation	X - 37 - 58 - 79
Ego syntonic states (valued self)	
Grandiosity	17 - 38 - 59 - 80
Moral superiority/critical judgement	18 - X - 60 - 81
Status seeking/territoriality/consolidation	19 - 40 - 61 - 82
Pleasure-seeking/hedonism	20 - 41 - 62 - 83
Self-care states (healthy self)	
Attachment and belonging/interpersonal safeness	1 - 3 - 65 - 63 (NR)
Self-trust and integrity/assertiveness	37 - 53 - 69 - 42 (NR)
Acceptance and forgiveness/mindfulness	12 - 32 - 57 - 84 (NR)
Self-worth and compassion/emotional fulfillment	8 - 28 - 46 - 21 (NR)

NR, non-reversed items.

For example we expected to find correlations between EMS of abandonment/instability (*e.g.*, *I find myself clinging to people I'm close to, because I'm afraid they'll leave me*), with states of abandonment/non-lovability (*e.g.*, *I feel abandoned, alone and without value*) and between EMS of emotional deprivation (*e.g.*, *People have not been there to meet my emotional needs*) with states of affective neglect (*e.g.*, *I have no one to share my feelings with*).

Thematic related EMS and mental states were correlated as expected, for example, painful state of abandonment/non-lovability is positively correlated with the abandonment/instability schema (r=0.537, P<0.001), painful state of alienation/group exclusion is positively correlated with the social isolation schema, (r=0.526, P<0.001), and painful state of fear of judgment/shame positively correlated with defectiveness/shame schema (r=0.643, P<0.001) (Table 7).

Divergent validity

We tested whether Self-Care mental states were negatively correlated with EMS. We found negative medium to strong correlations between almost all EMS and Self-Care States (Table 8).

Relationships between the states of mind and symptomatology

Table 8 describes Person's correlations between mental states at the level of both specific states and domains,

Table 4. Internal reliability of total and sub-scales of the States of Mind Questionnaire (N=421).

Domains and sub-scales	*No. items*	*Cronbach α*
Suffered and feared states (vulnerable self)	***31***	***0.955***
Abandonment/non-lovability	4	0.814
Alienation/group exclusion	4	0.819
Vulnerability/relational danger	4	0.843
Unworthiness/fear of judgement/shame	4	0.891
Moral guilt and survivor's guilt	3	0.697
Constriction/injustice/forced submission	4	0.746
Negligence/affective frustration/privation	4	0.776
Invalidation/ self-criticism / punishment	4	0.758
Coping states (coping self)	***30***	***0.931***
Mistrustfulness	4	0.771
Self-protective anger/opposition/rebellion	4	0.824
Devitalized emptiness	4	0.894
Avoidance/protective isolation	4	0.722
Compliance/sought-for subjugation	3	0.773
Workaholism/perfectionism/overload	4	0.728
Idealization of the other/ideal protector	4	0.632
Stupefaction/self-alienation	3	0.766
Egosyntonic states (valued self)	***15***	***0.821***
Grandiosity	4	0.611
Moral superiority/critical judgement	3	0.631
Status-seeking/territoriality/consolidation	4	0.765
Pleasure-seeking/hedonism	4	0.681
Self-care states (healthy self)	***16***	***0.914***
Attachment and belonging/interpersonal safeness	4	0.789
Self-trust and integrity/assertiveness	4	0.715
Acceptance and forgiveness/mindfulness	4	0.622
Self-worth and compassion/emotional fulfillment	4	0.762
Total score	***80***	***0.917***

Note: italics represent the higher-order organization of the four domains of states of mind.

and symptoms as evaluated by the BSI. All correlations are statistically significant ranging from weak (r=0.360, P<0.001) to strong (r=0.757, P<0.001). As expected, fearful/suffering and coping states were positively associated with symptoms. On the other hand, self-care states were negatively associated with symptoms (Table 9).

To explore if the total score of SMQ has predictive value in explaining symptoms, we used a simple regression analysis. SMQ predicts 57.9% of symptoms variance (b= –1.108, t= –10.917, P=0.000).

Therefore, we used stepwise regression analyses to explore if the different domains had different weights in explaining symptom variance. Self-care and coping states explain 61,6% of the variance in BSI (b=0.336, t=3.795, P=0.000), with both contributions in the expect direction (Table 10).

Finally, we used stepwise regression analyses to find the best model to explain variance in BSI. This was done by mental state (Table 11). All VIF values were under 10. Among the vulnerable self states *abandonment/non-lovability, constriction/injustice/submission, alienation/group exclusion* and *constriction/injustice/submission* explain 58.7% of symptoms (b=0.172, t=3.020, P=0.003) |VIF<2.49|.

Table 5. Mean and standard deviations of the baseline and retest reliability with person correlations a T-Student for the total score and the States of Mind Questionnaire subscales (N=70).

	Baseline		Retest		Person	*T-test*	
Domains and Sub-scales	**Mean**	**(SD)**	**Mean**	**(SD)**	***r*****	***t df=70)***	**P**
Painful states (vulnerable self)	***5.33***	***1.47***	***5.25***	***1.39***	***0.679***	***0.600***	***0.550***
Abandonment/non-lovability	1.85	0.89	1.89	1.03	0.591	–0.370	0.712
Alienation/group exclusion	2.29	0.99	2.32	1.18	0.666	–0.294	0.770
Vulnerability/relational danger	1.84	0.81	1.88	0.89	0.734	–0.565	0.574
Unworthiness/fear of judgement	2.31	1.21	2.40	1.18	0.682	–0.806	0.423
Moral guilt and survivor's guilt	2.51	1.18	2.38	1.10	0.751	1.393	0.168
Constriction/injustice/submission	2.14	0.95	1.99	0.85	0.632	1.589	0.117
Negligence/affective frustration	2.03	0.99	2.07	1.04	0.606	–0.359	0.720
Invalidation/ self-criticism	1.97	0.91	1.96	1.06	0.761	0.169	0.866
Coping states (coping self)	***5.32***	***1.46***	***5.26***	***1.34***	***0.650***	***0.457***	***0.649***
Mistrustfulness	2.98	1.18	3.03	1.08	0.645	–0.495	0.622
Self-protective anger/opposition	2.63	1.23	2.57	1.22	0.724	0.551	0.583
Devitalized emptiness	1.91	1.19	1.98	1.30	0.717	–0.625	0.534
Avoidance/protective isolation	2.70	1.10	2.57	1.01	0.483	0.991	0.325
Compliance/sought-for subjugation	2.05	0.88	2.00	0.85	0.714	0.676	0.501
Workaholism/perfectionism	2.97	1.27	2.91	1.14	0.764	0.601	0.550
Idealization/ideal protector	2.48	0.93	2.50	1.00	0.637	–0.180	0.858
Stupefaction/self-alienation	2.13	0.94	2.12	0.98	0.660	0.149	0.882
Ego syntonic states (valued self)	***8.12***	***2.10***	***8.07***	***1.94***	***0.630***	***0.262***	***0.794***
Grandiosity	1.89	0.71	1.83	0.78	0.587	0.781	0.437
Moral superiority/critical judgement	2.63	0.91	2.44	0.80	0.512	1.867	0.066
Status-seeking/territoriality	2.08	1.02	2.03	0.99	0.649	0.420	0.676
Pleasure-seeking/hedonism	2.73	1.03	2.67	1.02	0.722	0.618	0.538
Self-care states (healthy self)	***4.50***	***0.97***	***4.61***	***0.85***	***0.768***	***–1.427***	***0.158***
Attachment/interpersonal safeness	4.73	1.07	4.75	1.05	0.761	–0.201	0.841
Self-trust and integrity/assertiveness	4.62	1.16	4.61	1.07	0.767	0.116	0.908
Acceptance /mindfulness	4.20	1.09	4.40	0.96	0.642	–1.885	0.064
Compassion/emotional fulfillment	4.46	1.07	4.5	1.05	0.709	–1.316	0.192
Total score	***2.40***	***0.64***	***2.37***	***0.60***	***0.672***	***0.489***	***0.627***

Note: italics represent the higher-order organization of the four domains of states of mind.

Among Coping self-states, *devitalized emptiness, mistrustfulness, self-protective anger/opposition, workaholism/perfectionism,* and *stupefaction/self-alienation* explain 62 % of symptoms (b=0.096, t=2.131, P=0.034) |VIF<1.68|.

Among Ego syntonic self states, *pleasure-seeking/hedonism,* and *grandiosity,* explains 0.9% of symptoms (b=0.182, t=3.205, P=0.001) |VIF<1.15|. Finally, among all four Self-Care States contributed together to explaining 56.2% of symptoms (b= –0.231, t= –3.056, P=0.002) |VIF<4.17|. Multicollinearity showed an adequate fit on the regression analysis which is an index of the independence of the constructs under study.

Discussion

Aims

The present study aimed to developed and validate the SMQ, that is a new instrument to assess states of mind, adopting a transtheoretical approach. Also, the present study aimed to explore the relationships between states of mind and symptomatology, which is a complement of convergent validity. First, this is relevant because exploring the subjective experience of people undergoing psychological treatments is key both for assessment and for understanding the therapeutic process. Second, in the literature there were there were no measure that focused on

Table 6. Intercorrelation matrix and corrected item-total correlations between states of mind and self-domains (N=421).

Domain and sub-scales	***PS***	**AB**	**AG**	**VR**	**US**	**MG**	**CI**	**AF**	**IC**
Abandonment/non-lovability	0.819**	1	-	-	-	-	-	-	-
Alienation/group exclusion	0.710**	0.670**	1	-	-	-	-	-	-
Vulnerability/relational danger	0.832**	0.701**	0.614**	1	-	-	-	-	-
Unworthiness/fear of judgement	0.816**	0.679**	0.582**	0.755**	1	-	-	-	-
Moral guilt and survivor's guilt	0.665**	0.548**	0.464**	0.542**	0.609**	1	-	-	-
Constriction/injustice/submission	0.793**	0.637**	0.540**	0.796**	0.701**	0.556**	1	-	-
Negligence/affective frustration	0.773**	0.772**	0.661**	0.658**	0.618**	0.468**	0.632**	1	-
Invalidation/ self-criticism	0.761**	0.667**	0.520**	0.636**	0.690**	0.657**	0.598**	0.580**	1
Domain and sub-scales	***CS***	**M**	**SA**	**DE**	**AV**	**CS**	**WP**	**IO**	**SA**
Mistrustfulness	0.700**	1	-	-	-	-	-	-	-
Self-protective anger/opposition	0.583**	0.550**	1	-	-	-	-	-	-
Devitalized emptiness	0.683**	0.469**	0.431**	1	-	-	-	-	-
Avoidance/protective isolation	0.766**	0.600**	0.455**	0.602**	1	-	-	-	-
Compliance/sought-for subjugation	0.663**	0.453**	0.357**	0.530**	0.610**	1	-	-	-
Workaholism/perfectionism	0.505**	0.419**	0.314**	0.275**	0.440**	0.352**	1	-	-
Idealization/ideal protector	0.599**	0.423**	0.322**	0.444**	0.507**	0.462**	0.404**	1	-
Stupefaction/self-alienation	0.763**	0.593**	0.504**	0.672**	0.611**	0.540**	0.385**	0.477**	1
Domain and sub-scales	***EGS***	**G**	**MS**	**SS**	**PS**				
Grandiosity	0.644**	1	-	-	-	-	-	-	-
Moral superiority/critical judgement	0.537**	0.445**	1	-	-	-	-	-	-
Status-seeking/territoriality	0.549**	0.590**	0.480**	1	-	-	-	-	-
Pleasure-seeking/hedonism	0.432**	0.316**	0.225**	0.304**	1	-	-	-	-
Domain and sub-scales	***SCS***	**AIS**	**STA**	**AM**	**SC**				
Attachment/interpersonal safeness	0.853**	-	-	-	-	-	-	-	-
Self-trust and integrity/assertiveness	0.826**	0.754**	1	-	-	-	-	-	-
Acceptance /mindfulness	0.790**	0.664**	0.715**	1	-	-	-	-	-
Compassion/emotional fulfillment	0.853**	0.840**	0.740**	0.726**	1	-	-	-	-

**P<0.001. PS, painful states; CP, coping states; EGS, ego syntonic; SCS, self-care states; AB, abandonment/non-lovability; AG, alienation/group exclusion; VR, vulnerability/relational danger; US, unworthiness/fear of judgement/shame; MG, moral guilt and survivor's guilt; CI, constriction/injustice/forced submission; AF, negligence/affective frustration/privation; IC, invalidation/self-criticism/punishment; M, mistrustfulness; SA, self-protective anger/opposition/rebellion; DE, Devitalized emptiness; AV, avoidance/protective isolation; CS, compliance/sought-for submission; WP, workaholism/perfectionism/overload; IO, idealization of the other/ideal protector; SA, stupefaction/alienation; IC, interpersonal connectiveness/belonging; ST, self-trust/integrity; AM, acceptance/mindfulness; SC, self-compassion/emotional fulfilment.

the identification of different states of mind, based on the integrative literature. Third, this questionnaire provides a conceptual functional and structural self-structure (vulnerable, coping, ego and care states of mind), that can be helpful to case conceptualization and clinical decision making, based on the different states of mind. We expected to have three or four cluster of states of mind which could be theoretically related. However, results were not what we expected to some degree, but they were somewhat related with similar constructs in the literature.

Dimensionality

The factorial structure of the SMQ did not matched perfectly with the theoretical conceptualization, being this somewhat expected (Pereira, 2009). SMQ aims to explore four different functional aspects of states of mind (such as, suffered and coping states), therefore it was expected

Table 7. Pearson correlations between states of mind and early maladaptive schemas (N=317).

States of mind/Maladaptive Schemas	AI	SI	DS	S	ED	P	AT
Abandonment/non-lovability	0.537**	-	-	-	-	-	-
Alienation/group exclusion	-	0.526**	-	-	-	-	-
Unworthiness/shame	-	-	0.643**	-	-	-	-
Constriction/submission	-	-	-	0.613**	-	-	-
Negligence/affective/privation	-	-	-	-	0.614**	-	-
Invalidation/self-criticism	-	-	-	-	-	0.561**	-
Attention-seeking/superiority	-	-	-	-	-	-	0.590**

**P<0.001. AI, abandonment/instability; SI, social isolation; DS, defectiveness/shame; S, subjugation; EP, emotional deprivation; P, punishment; AT, attention-seeking.

Table 8. Pearson correlations between early maladaptive schemas and Self Care States (N=317).

Domains and sub-scales	*SCS*	IC	ST	AM	CEF
Disconnection and rejection domain	–0.843**	–0.760**	–0.694**	–0.716**	–0.794**
Emotional deprivation	–0.714**	–0.627**	–0.572**	–0.651**	–0.656**
Abandonment	–0.645**	–0.591**	–0.494**	–0.545**	–0.580**
Mistrust/abuse	–0.739**	–0.726**	–0.694**	–0.547**	–0.733**
Social isolation	–0.740**	–0.618**	–0.590**	–0.648**	–0.699**
Defectiveness/shame	–0.736**	–0.665**	–0.592**	–0.641**	–0.697**
Impaired autonomy domain	–0.822**	–0.754**	–0.702**	–0.701**	–0.767**
Failure	–0.782**	–0.773**	–0.668**	–0.648**	–0.758**
Functional dependency	–0.734**	–0.669**	–0.633**	–0.595**	–0.716**
Vulnerability to illness	–0.620**	–0.521**	–0.532**	–0.557**	–0.539**
Underdeveloped self	–0.607**	–0.539**	–0.506**	–0.547**	–0.537**
Impaired limits domain	–0.618**	–0.556**	–0.466**	–0.566**	–0.578**
Entitlement	–0.581**	–0.544**	–0.454**	–0.518**	–0.555**
Insufficient self-control and discipline	–0.506**	–0.434**	–0.365**	–0.477**	–0.461**
Others domain	–0.753**	–0.661**	–0.583**	–0.679**	–0.690**
Subjugation	–0.636**	–0.541**	–0.496**	–0.585**	–0.573**
Self-sacrifice	–0.485**	–0.387**	–0.366**	–0.470**	–0.418**
Attention-seeking	–0.559**	–0.524**	–0.452**	–0.456**	–0.510**
Overprotection and inhibition domain	–0.793**	–0.677**	–0.648**	–0.702**	–0.749**
Emotional inhibition	–0.709**	–0.608**	–0.539**	–0.638**	–0.651**
Unrelenting standards	–0.573**	–0.514**	–0.463**	–0.502**	–0.534**
Pessimism	–0.753**	–0.671**	–0.693**	–0.609**	–0.721**
Punishment	–0.593**	–0.454**	–0.446**	–0.580**	–0.574**

**P<0.001. SCS, self-care states; IC, interpersonal connectiveness/belonging; ST, self-trust/integrity; AM, acceptance/mindfulness; CEF, compassion/emotional fulfillment.

that some states would be mixed, because, individuals may have different suffered states and they may have different coping states to deal with inner suffering (Dimaggio *et al.*, 2015, Young *et al.*, 2003; Vasco *et al.*, 2018). This result is consistent with the literature that emphasizes individual differences in emotion regulation strategies (Faustino, 2020; John & Gross, 2007). One major issue of the assessment of different functional aspects of psychological constructs is that individuals may have several forms to cope with their internal experience. Which means that when an individual answer to a questionnaire that has different functional aspects of the psychological functioning (*e.g.*, a suffered state, such as, *vulnerability/relational danger* and a coping state such as *devitalized emptiness*), it is somewhat expected that it him/her score high in these two states. However, when the EFA extracted the latent variable underlying items scores, these two different states cluster together even though they are thematically and functionally independent. Thus, factor one resembles the *suffered* states of mind with frequent *coping* states asso-

Table 9. Pearson correlations between states of mind and self-domains (States of Mind Questionnaire) sub-scales and symptoms from brief symptomatic scale (N=327).

	BSI	S	OB	IS	D	A	H	FA	PI	P
PS	0.757**	0.578**	0.679**	0.679**	0.726**	0.726**	0.724**	0.724**	0.656**	0.656**
AB	0.700**	0.517**	0.594**	0.595**	0.639**	0.639**	0.745**	0.745**	0.569**	0.569**
AG	0.617**	0.474**	0.537**	0.537**	0.567**	0.567**	0.596**	0.596**	0.504**	0.504**
VR	0.651**	0.571**	0.603**	0.603**	0.663**	0.663**	0.658**	0.658**	0.637**	0.637**
US	0.646**	0.492**	0.577**	0.577**	0.673**	0.673**	0.612**	0.612**	0.587**	0.587**
MG	0.497**	0.360**	0.438**	0.438**	0.492**	0.492**	0.465**	0.466**	0.451**	0.451**
CI	0.637**	0.563**	0.581**	0.581**	0.648**	0.648**	0.587**	0.587**	0.583**	0.582**
AF	0.653**	0.492**	0.538**	0.538**	0.616**	0.616**	0.694**	0.694**	0.517**	0.517**
IC	0.601**	0.453**	0.538**	0.538**	0.567**	0.567**	0.594**	0.594**	0.566**	0.565**
	BSI	**S**	**OB**	**IS**	**D**	**A**	**H**	**FA**	**PI**	**P**
CS	0.753**	0.575**	0.683**	0.683**	0.716**	0.716**	0.719**	0.719**	0.650**	0.649**
M	0.603**	0.454**	0.532**	0.532**	0.590**	0.590**	0.538**	0.538**	0.499**	0.498**
SA	0.547**	0.378**	0.466**	0.466**	0.500**	0.500**	0.501**	0.501**	0.465**	0.465**
DE	0.675**	0.521**	0.618**	0.618**	0.547**	0.547**	0.801**	0.801**	0.574**	0.573**
AV	0.614**	0.494**	0.575**	0.576**	0.592**	0.592**	0.599**	0.599**	0.548**	0.548**
CS	0.495**	0.436**	0.494**	0.494**	0.510**	0.510**	0.487**	0.487**	0.494**	0.493**
WP	0.444**	0.324**	0.407**	0.407**	0.409**	0.409**	0.319**	0.319**	0.390**	0.390**
IO	0.464**	0.336**	0.422**	0.422**	0.440**	0.440**	0.429**	0.429**	0.401**	0.401**
SA	0.671**	0.542**	0.636**	0.637**	0.575**	0.575**	0.680**	0.680**	0.564**	0.564**
	BSI	**S**	**OB**	**IS**	**D**	**A**	**H**	**PA**	**PI**	**P**
SCS 0.674**	–0.769**	–0.599**	–0.691**	–0.691**	–0.722**	–0.722**	–0.797**	–0.797**	–0.674**	–
IC 0.606**	–0.689**	–0.537**	–0.604**	–0.604**	–0.647**	–0.647**	–0.722**	–0.722**	–0.606**	–
ST 0.556**	–0.666**	–0.520**	–0.632**	–0.632**	–0.566**	–0.566**	–0.750**	–0.750**	–0.556**	–
AM 0.552**	–0.637**	–0.496**	–0.580**	–0.580**	–0.630**	–0.630**	–0.639**	–0.639**	–0.552**	–
SC 0.589**	–0.696**	–0.503**	–0.603**	–0.603**	–0.670**	–0.670**	–0.742**	–0.742**	–0.589**	–
Total Index	0.761**	0.582**	0.682**	0.682**	0.722**	0.722**	0.727**	0.727**	0.658**	0.657**

**P<0.001. PS, painful states; CP, coping states; SCS, self-care states; AB, abandonment/non-lovability; AG, alienation/group exclusion; VR, vulnerability/relational danger; US, unworthiness/fear of judgement/shame; MG, moral guilt and survivor's guilt; CI, constriction/injustice/forced submission; AF, negligence/affective frustration/privation; IC, invalidation/self-criticism/punishment; M, mistrustfulness; SA, self-protective anger/opposition/rebellion; DE, devitalized emptiness; AV, avoidance/protective isolation; CS, compliance/sought-for submission; WP, workaholism/perfectionism/overload; IO, idealization of the other/ideal protector; SA, stupefaction/alienation; IC, interpersonal connectiveness/belonging; ST, self-trust/integrity; AM, acceptance/mindfulness; SC, self-compassion/emotional fulfilment; TO, total score of SMQ; BSI, brief symptomatic scale; S, somatization. OB, obsessive-compulsive; IS, interpersonal sensitivity; D, depression; A, anxiety; H, hostility; PA, phobic anxiety; PA, paranoid ideation; P, psychoticism.

ciated. This may be the main issue of this questionnaire, when individuals report their states of mind, they report *suffered*, *coping* and *ego syntonic* states, which means that the EFA, will cluster them together as the same construct, when in reality they are not. They emerge together in one factor because they may be associated, but they are different states of mind with different functions (*e.g.*, a coping state such as *devitalized emptiness* used to deal with *abandonment/non-lovability*). In the literature this effect of merged items from different constructs in the same factor loadings is called the high distress factor or a general distress factor (Ryan, Kumar & Wagner, 2014).

In a similar study conducted by Pereira (2009), the same issue was found regarding the adaptation of the Schema Mode Inventory to European Portuguese. The schema mode concept may be similar to the states of mind concept, where people do not report only one mode, but a cluster of modes (or states), which leads to confounding results in EFA. Fundamentally, in the study of Pereira (2009), schema coping modes mixed with vulnerable child modes which did not allow a clean interpretation, which is quite similar to what happen in the present study. Thus, EFA may not be the adequate to explore complex constructs such as modes or states of mind, because, these type of questionnaires try to assess psychological constructs that: i) people have their own configuration of states (a state of mind of one person may be different from the other, because, people construct their own states based on their past experiences and socio-cognitive-affective development); ii) people report different states or modes that are different in their function; iii) the EFA may not be sensible to this issue because the scale is not unidimensional, due to different functions of states of mind. Different people report different states of mind with different functions and these states may tend to cluster together. Nevertheless, they are different in its underpinnings and mental functions, such as, deal with pain of *abandonment* or search for pleasure to avoid feeling *constrained*, *subjugated,* or *submissive*.

Even so, the EFA showed a structure regarding some hypothesized states of mind, which were then formed based on the thematically saturated items. Factor one was divided to build *suffered* and *coping* states of mind. The other factors were built according to EFA and related items. Factors with less than 2 items were matched with other similar item content. In this sense was possible to have a questionnaire with 24 states of mind, divided by four self-categories such as vulnerable/suffered, coping, ego syntonic and healthy/care states. Thus, the core idea on the development of the SMQ was that it would be a clinical tool to assess a wide range and different clusters of states of mind, which is why we developed such extent questionnaire.

Reliability and test-retest

Concerning temporal stability, our results were in line with previous studies on the related concept of modes (Lobbestael *et al.*, 2008; Lobbestael *et al.*, 2010; Pereira, 2009). Thus, we could argue that the construct of states of mind is stable over time because it encompasses different forms or experience that may cluster together in a recurrent

Table 10. Stepwise regression analysis for the States of Mind Questionnaire domains with brief symptomatic scale as dependent variable (N=327).

Predictors	*R*	R^2	*B*	*T*	P
Self-care sates	0.769	0.591	–0.473	–6.449	0.000
Coping states	0.785	0.616	0.336	4.581	0.000

Table 11. Stepwise regression analysis for states of mind (States of Mind Questionnaire) with the symptoms (brief symptomatic scale) as the dependent variable (N=327).

Predictors		*R*	R^2St	*Beta*	*t*	*Sig.*
Suffered states	Abandonment/non-lovability	0.700	0.490	0.320	5.612	0.000
	Unworthiness/fear of judgement/shame	0.742	0.550	0.204	3.764	0.000
	Alienation/group exclusion	0.759	0.575	0.198	3.991	0.000
	Constriction/injustice/submission	0.766	0.587	0.172	3.020	0.003
Coping states	Devitalized emptiness	0.675	0.456	0.363	7.619	0.000
	Mistrustfulness	0.750	0.563	0.190	4.023	0.000
	Self-protective anger/opposition	0.770	0.593	0.207	3.942	0.000
	Workaholism/perfectionism	0.784	0.615	0.156	3.969	0.000
	Stupefaction/self-alienation	0.787	0.620	0.096	2.131	0.034
Ego syntonic states	Pleasure-seeking/hedonism	0.262	0.069	0.196	3.448	0.001
	Grandiosity	0.312	0.098	0.182	3.205	0.001
Self-care states	Self-compassion/emotional fulfillment	0.696	0.484	–0.210	–2.704	0.007
	Self-trust/integrity	0.730	0.534	–0.196	–3.106	0.002
	Acceptance/mindfulness	0.741	0.550	–0.198	–3.482	0.001
	Interpersonal connectiveness/belonging	0.750	0.562	–0.231	–3.056	0.002

way. However, state of mind theory hypothesizes that mental states are to a large extent context-depend and therefore should vary depending on the situation or mood the person is in at the moment (Dimaggio *et al.*, 2015; Horowitz, 1987; Ryle, 2005). Thus, states of mind may be recurrent in people's mind which is consistent with theory predictions (Dimaggio *et al.*, 2015). This is also consistent with the concept of modes where temporal stability was also found to be high (Lobbestael *et al.*, 2008).

Convergent and divergent validity

Regarding convergent validity, we tested a correlation matrix between the four overreaching categories: *painful and feared states*, *coping states*, *ego syntonic states*, and *self-care states*. Results showed that all correlations match theory predictions, in line with mode construct (Lobbestael *et al.*, 2010; Pereira, 2009). Meaning that, as expected, mental states such as abandonment/non-lovability, unworthiness/fear of judgment/shame or alienation/group exclusion matched painful and feared states (vulnerable self). States of mind such as devitalized emptiness, mistrustfulness or self-protective anger/opposition matched other coping states. In sum, all mental states were highly correlated with their expected category. Overall mental states were consistently associated with EMS in a way that matches their thematic similarity, which is why strong correlations between states of mind and schema were found. As expected, states of mind of abandonment/non-lovability, alienation/social exclusion or fear of judgment/shame, correlated positively with EMS of abandonment/instability, social isolation, and defectiveness/shame, respectively. This is consistent with earlier predictions by Horowitz (1987; 1991) that interpersonal patterns lie at the roots of patterns of subjective experience (Dimaggio *et al.*, 2015: Young *et al.*, 2003).

Regarding divergent validity, we found negative correlations between adaptive and non-adaptive instances of the *self* (Vasco, 2001). Positive *self-states* of interpersonal connectedness/belonging, self-trust/integrity, acceptance/mindfulness and self-compassion/emotional fulfilment captured by the SMQ correlated negatively with all EMS. This shows that self-care states of mind are opposed to EMS, and probably, are diminished or absent in the presence of EMS. This is in line with discrepant findings in the field of ST where healthy child/adult modes are negatively correlated with vulnerable child modes (Lobbestael *et al.*, 2010; Pereira, 2009). Thus, as described in the previous section, negative strong correlations were found, because adaptive states of mind may encompass some oppose elements of EMS.

Relationships between states of mind and symptomatology

The second aim was to explore the relationship between states of mind and symptoms, which may also support convergent validity. Hypothesis one and two were supported by findings, as distressful and coping states of mind were associated with heightened symptoms and significantly explained symptoms variance. This is consistent with previous theoretical assumptions where symptomatology is associated with painful states of emotional suffering and distress (Dimaggio *et al.*, 2007; 2015; Young *et al.*, 2003). In simple words, when people experience cluster of ideas and emotions filled with negative valence, they also experience a wide array of psychological distress, which is consistent with early prediction of personal construct psychology (Kelly, 1955).

Regarding hypothesis 3, adaptative and self-care states were negatively associated with symptoms and also predicted differences in symptoms variance. Overall, consistent with expectations, mental states significantly predicted symptom levels. An unexpected finding is that self-care states had the greatest predictive value. This finding may be explained by the nature of the sample because, this sample was recruited from the general population, which means that is an non-clinical sample. Therefore, it is possible that the expected correlation between negative states and symptoms appear in treatment seeking individuals with significant psychopathology.

Another explanation is consistent with ideas that suffering does not just come from negative subjective experiences, but also from absence or reduction of positive experiences (Conceição & Vasco, 2005; Dimaggio *et al.*, 2015; Fredrickson, & Joiner, 2002; Garland *et al.*, 2010; Gilbert, 2010; Greenberg, 2017; Faustino & Vasco, 2020c; Young *et al.*, 2003). Notice that these two hypotheses are not mutually exclusive. Sure, results need replication in different samples with higher levels of symptoms and suffering from diverse psychological disorders.

Limitations of the study

Despite the promising results, our study has several limitations. First, as noted, it is difficult to ascertain if participants gave a response that was context-dependent, so evaluating their self-*states*, that is momentary experiences, or understood they had to report about their typical experiences, so describing trait-like aspects of their experiences. In the future, timely evaluation measures (*e.g.*, behavioral observations) may be used to clarify whether patterns of internal experience (*e.g.*, thoughts, beliefs, emotions) recur consistently in a more volatile or stable way.

Steyer, Mayer, Geiser, and Cole (2014), refer that observations are fallible, never happen in a situational vacuum and are always made using a specific method of observation. In this sense, the measurement error could be a consequence of situational fluctuations, because of the volatile nature of states of mind. Glenn and Monteith (2014), emphasize the potential of new technologies (*e.g.*, smartphones) in the identification of moment mental states that could help to establish mental health parameters.

Another issue was that this study was online, and all

documented limitations with this procedure are available in our study. Other possible problems are that subjective experience is so rich that we can simply have neglected it, discarding some aspects to include others of cognition, affects and sensations that are personal and clinically significant. We need further content analysis to explore this issue, including exploring whether self-reported states of the SMQ match emerging contents in patients' verbalizations (*e.g.* interview or session transcripts).

Another limitation is that some items may also resemble or be like some form of maladaptive interpersonal schemas. However, this was somewhat expected because states of mind encompass some form of cognitive and interpersonal domains which are related with interpersonal schemas.

Moreover, we did not take in account substance use, metacognitive disfunctions and symptomatology of the retest procedure which could lead to some difficulties on the self-awareness. Results need replication in samples with specific psychopathology and/or treatment seeking and formally assessed. Finally, in this first study, we explored correlations with mental states grouped according to theory. We did not perform any cluster analysis to check whether states cluster in the expected ways, which is a next step of the research program.

Implications for the future

This preliminary study provided promising results regarding basic psychometric properties of SMQ, especially by a satisfactory internal consistency, convergent, divergent validaties and also, by being consistently correlated with symptomatology. There are many areas left to explore, for example, to investigate its correlations with both aspects of malfunctioning, such as poor emotion awareness and regulation, maladaptive perfectionism and specific symptoms such as anxiety, obsessions or behavioral problems, (*e.g.* alcohol and drug abuse, eating disorders) and so forth. Also, correlations with other aspects of adaptive experiences, such as mindfulness and self-compassion deserve further investigation.

Another element deserving investigations is the connection between states and basic goals or needs of the individual. People are supposed to experience specific states while trying to reach evolutionary shaped basic motives, such as attachment, social rank, group inclusion, exploration and so forth (Dimaggio *et al.*, 2015; Gilbert, 2010; Liotti & Gilbert, 2011). It is theoretically consistent to postulate that states of mind may fluctuate according to an underlying perceived psychological need, which may have a signaling function. When psychological needs are unbalanced, individuals may experience suffered and coping states. In this sense, we aim to explore this in future research. Another issue for future research is exploring the link between metacognition and states of mind as the capacity to understand and describe mental states is supposed to be connected to the experience one is living in the moment (Semerari *et al.*, 2003).

With the SMQ, researchers and clinicians may have an important tool to evaluate both the typical patterns of experience the person has, which helps to refine clinical assessment. In parallel, exploration of the psychotherapeutic process and outcome may include simple and reliable evaluations of the first-hand experiences of the client, which is essential to understand psychotherapeutic outcome.

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