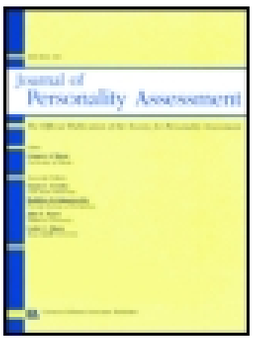

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The Mental States Task (MST): Correlates and New Perspectives on Mentalizing in a Lebanese Student Sample

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ABSTRACT

Mentalizing is defined as one's capacity to think in terms of mental states underlying one's own and others' behaviors. It has been posited to develop within the context of a secure attachment relationship and has been linked to a myriad of psychological adjustment variables. Given the scarcity of research on mentalizing in Lebanon, this study aimed to investigate mentalizing in a sample of 293 Lebanese undergraduate students using a novel tool, the Mental State Task (MST). Higher mentalizing scores were found to be positively correlated with self-esteem, neurotic defenses, authenticity and adaptive emotion regulation strategies, as well as negatively correlated with psychological symptomatology. This study also provided descriptions of the six mental states measured by the MST continuum based on their correlations with related constructs. Findings diverge with the literature in relation to the association between defense styles and MST scores, which were posited to reflect cultural specificities of this sample.

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Mentalizing is defined as a form of mental activity concerned with perceiving and interpreting human behaviors with corresponding underlying intentional mental states such as needs, affects and beliefs of the self and the other (Fonagy et al., 1998; Slade, 2005). Genuine mentalizing entails being aware of the opaqueness and the uncertainty in relation to knowing one's own and the other's mental states. This makes it easier to conceive that others might have different sets of beliefs and feelings, which helps in navigating interpersonal relationships. In Lebanon, studies of mentalizing capacities are scarce, with only one study to date investigating mentalizing capacities in a sample of Lebanese incarcerated men (Abi-Habib et al., 2020). The aim of this study is to partially replicate earlier findings using a new measure of mentalizing, the Mental State Task (MST; Beaulieu-Pelletier et al., 2013) in a Lebanese sample, investigating its convergent validity with measures of reflective functioning, defenses and authenticity among others, as well as present portraits of its six distinct mental states.

The development of mentalizing capacities within the attachment framework

Fonagy and colleagues have speculated that genuine mentalizing capacities in children, only fostered within the safety of a secure attachment relationship, lead to psychological and subjective exploration (Allen et al., 2003). In this instance, the mother provides the child with the necessary tools, through emotion recognition and support in emotion regulation, to start mentalizing; that is, the child learns to understand the mental states underlying one's own and others' behaviors (Fonagy et al., 1991). Mentalizing therefore facilitates emotional interpretation and prediction of affect and behaviors, considered a pillar of emotion regulation (Fonagy et al., 2004; Greenberg et al., 2017).

Gross and John (2003) described two emotion regulation strategies. They defined 1) cognitive reappraisal as one's capacity to change the way emotionally-loaded events are evaluated before they occur, and 2) expressive suppression, presented as a maladaptive strategy, aiming to reduce the behavioral aspects of a developed negative emotional response. Relating these emotion regulation strategies to mentalizing capacities, it can be argued that, on one hand, mentalizing facilitates cognitive reappraisal as it allows one to reevaluate an emotional situation in order to decrease its emotional impact on the self. On the other hand, mentalizing decreases the use of emotional suppression which entails a defense against the internal subjective experience of emotionally-loaded or anxiety-provoking events (Allen et al., 2003; Fonagy & Bateman, 2007; Lemche et al., 2004).

In line with a breadth of studies converging in finding that mentalizing capacities develops within the context of a secure attachment relationship (Fonagy et al., 1991, 2016; Slade et al., 2004), researchers have found that genuine mentalizing, or higher mental states, were associated with fewer psychological symptoms, lower levels of emotional dysregulation and lower attachment anxiety and avoidance (Beaulieu-Pelletier et al., 2013; Gorska, 2015; Marszał & Janczak, 2018). Mentalizing capacities have been consistently found to play a protective role, as they facilitate one's

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integration and making sense of emotional experiences (Fonagy et al., 2011).

Mentalizing has also been found to be related to self-esteem as it allows the person to genuinely self-reflect, incorporating others' and one's own subjective experiences in a balanced manner (Kawamichi et al., 2018). It facilitates the elaboration of a coherent sense of self (Allen et al., 2003) and is thus correlated with authenticity, reflecting one's openness to subjective experience based on a sense of agency (Beaulieu-Pelletier et al., 2013). Therefore, lower mentalizing capacities have been associated with lower authenticity ($r = -.15$, $p < .05$) relating to one's inability to process subjective experiences using unbiased processing (Beaulieu-Pelletier et al., 2013).

Owing to the importance of mentalization in the context of attachment, a number of assessment tools have been developed. For example, the Reflective Functioning Scale constitutes a coding system of the Adult Attachment Interview (AAI; George et al., 1985), investigating the early parent-child relationship, and of the Parent Development Interview (PDI; Aber et al., 1985), assessing parents' representations of themselves, their children and the ongoing parent-child relationship (Slade et al., 2004). More recently, given that conducting and coding interviews is time- and labor-intensive (Badoud et al., 2015; Fonagy et al., 2016), Fonagy and colleagues have developed a self-report measure of mentalization, termed the Reflective Functioning Questionnaire (RFQ; Fonagy et al., 2016). The RFQ has been validated in both clinical and normative adult samples but is particularly suited to the assessment of severe impairments in mentalizing ability, such as people with borderline, antisocial or narcissistic personality disorders, as it taps into non-genuine mentalizing (Fonagy et al., 2016; Luyten et al., 2019). This limitation in terms of target population has led another group of researchers to adapt a different model of mentalizing, the mental states model, to be used in normative samples.

The mental states model of mentalizing and defenses

The mental states model, has been devised as an alternative to using time-consuming measures of mentalization (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001; Bouchard et al., 2008). This model suggests that the quality of mentalization is determined by differences in one's mental states which are dependent on a) the level of the activation of mental representations in the event of emotional experiences (representation/elaboration) and b) one's capacity to regulate one's emotions by moderating the degree of openness in reaction to the emotionally-loaded event, in other words, the types of defensive strategies used (openness/modulation; Philippe et al., 2009). Beaulieu-Pelletier and colleagues therefore developed the Mental States Task (MST), a self-report questionnaire, to measure these levels of mentalizing. This study aims at partially replicating this research, investigating validity aspects of this mentalizing scale in a Lebanese sample.

An important and unique aspect of the mental states model is its reliance on the role of defenses in understanding and making sense of subjective affective experiences (Beaulieu-Pelletier et al., 2013; Beaulieu-Pelletier & Philippe, 2016). Scholars explained that the quality of mentalizing is dependent on many factors, one of which is the ego's attitude toward emotional experiences and affect tolerance, in other words, the type of defenses used and the ego's ability to be aware of them (Bouchard et al., 2008; Kernberg, 1996). Cramer (2015) reviewed 40 years of literature focusing on defense mechanisms and posited three main premises. First, defenses have been found to increase with stress as a way to protect the self (Cramer & Gaul, 1988), relating to the second finding that the role of defenses is protection against psychological distress (Dollinger, 1985; Dollinger & Cramer, 1990). Third, Cramer (2012, 2015) presented a detailed analysis of the change of defensive styles with age in terms of complexity and maturity, with older individuals using more mature defenses such as identification. The review of the literature also suggested that individuals suffering from psychological disorders tend to regress in the use of more immature defenses (Cramer & Kelly, 2004; Hibbard & Porcerelli, 1998; Hibbard et al., 2010). It is therefore argued that fluctuations in defense styles can be associated with levels of mentalizing; however, it is crucial to keep in mind that the two constructs are also distinct as one may be able to mentalize and think about the emotional impact of a situation while also defending against it (Beaulieu-Pelletier et al., 2013).

Based on the theoretical relationship between attachment, mentalizing and defenses, during the MST, participants are primed with the 3BM card of the Thematic Apperception Test (TAT; Murray, 1971), depicting a person sitting on the floor next to a couch, seemingly crying and upset; on the floor next to the character is an ambiguous object. This picture is used in order to evoke emotional arousal and regulation strategies, in relation to the themes of loss, depression, aggression and impulse control (Aronow et al., 2001). Participants are then asked to write down a story in response to the image and to respond to 24 items assessing their mental states during this task. This questionnaire seems promising, with initial studies suggesting a strong factorial structure and satisfactory robust maximum likelihood (Satorra-Bentler χ^2 ($df = 237$, $n = 298$) = 497.40, $p < .000$; NC = 2.13; NNFI = .89; CFI = .91; RMSEA = .062 (.054; .069); SRMSR = .079; AIC = 629.40), predictive validity with related concepts (authenticity, mindfulness and empathy), and good reliability coefficients (0.79–0.58 for the English version and 0.82–0.62 for the French version; Beaulieu-Pelletier et al., 2013; Beaulieu-Pelletier & Philippe, 2017). According to this model, the interaction between the two processes (i.e. representation/elaboration and openness/modulation) are theorized to yield different mental states, measured on a quality continuum from low to high as follows: Concrete Thinking, Low Defensive level, Intermediate Defensive level, Objective Rational, High Defensive level, and Reflective Thinking (Bouchard et al., 2001).

Lower mental states are proposed to be characterized by less mature defenses and emotion regulation strategies, lack of connection to emotional experiences and low awareness of one's thoughts and emotions in relation to an affective event, and have been found to be related to negative and maladaptive constructs (Beaulieu-Pelletier, 2012; Beaulieu-Pelletier et al., 2013; Bouchard et al., 2008; Dauphin et al., 2013; Gorska, 2015; Marszał & Janczak, 2018). These comprise three mental states: a) Concrete Thinking, characterized by a lack of association between internal and external experiences with a focus on the latter, b) Low Defensive level, perceiving internal subjective experiences as a threat to be defended against, and c) Intermediate Defensive level, only partly acknowledging the impact of negative experiences on the self and others, leading to maladjustment within relationships.

The Object Rational subscale falls in between the lower and higher mental states, reflecting some distancing from the emotional experience, only useful at times. Higher mental states are associated with more mature defenses and a capacity to recognize and elaborate on the subjective experience encountered, thus facilitating discussions about both positive and negative affect. These comprise of a) High Defensive level, representing a move toward an integrated subjective experience, albeit the presence of some mature defenses and b) Reflective Thinking, which echoes Fonagy et al. (1991) definition of mentalization, namely the capacity to consider the mental states underlying one's and others' behaviors. The MST also yields a total score, with higher scores reflecting higher, more genuine, mentalizing capacities, related to positive and adaptive constructs such as impulse control and emotion regulation (Beaulieu-Pelletier, 2012; Beaulieu-Pelletier et al., 2013; Bouchard et al., 2008; Dauphin et al., 2013; Gorska, 2015; Lee-Parritz, 2015; Marszał & Janczak, 2018).

The current study

In Lebanon, studies investigating mentalizing capacities are scarce. Therefore, the aim of this study was to investigate the association between MST scores and related constructs in a Lebanese sample. In line with the MST development study (Beaulieu-Pelletier et al., 2013) we will look at the factor structure of the MST as well as its convergent validity with measures of reflective functioning, attachment and defenses, as well as measures of adjustment.

Noteworthy is a brief cultural background of the Lebanese society elucidating some possible cultural influences on some of the constructs. Lebanon has been characterized as a predominantly collectivistic culture, where family rather than the individual is seen as the unit (Al-Shqerat & Al-Masri, 2001; Dwairy & Achoui, 2006; Hofstede, 1983; Qasem et al., 1998). This has been found to affect attachment styles, as Kazarian and Taher (2012) reported higher attachment anxiety scores in a Lebanese sample of undergraduate students when compared to a Western sample, possibly suggesting a greater preoccupation with interpersonal relationships in collectivistic cultures. It can therefore be argued that these same influences might affect findings in terms of related constructs such as mentalizing or defense styles.

We hypothesized that the total MST score and the two higher mentalizing subscales (reflective thinking and high defensiveness level) will be a) positively correlated with mature defenses and a similar but not identical construct of mentalization as measured by the RFQ, b) positively correlated with measures of adjustment including satisfaction with life, self-esteem and emotion regulation, c) positively correlated with measures of psychological adjustment and interest in subjective experiences, namely authenticity, d) negatively correlated with attachment avoidance and anxiety. Finally, we hypothesized that, similarly to Beaulieu-Pelletier et al. (2013), each MST subscale will have a distinct description, based on their correlation with the other convergent measures.

Method

Participants

Given the length of the questionnaires used to validate the original English version of the MST and in line with the initial validation study (Beaulieu-Pelletier et al., 2013), data was collected using the same procedure from two separate samples of Lebanese undergraduate students from a private American university. All students were fluent in English as acceptance is conditional based on proof of English proficiency scores on the SAT (minimum score 23) and one of the following: TOEFL (minimum score 80), IELTS (minimum score 6.5), EEE (which determines whether the student requires remedial English courses). All participants completed the MST; however, sample 1 completed version 1 of the booklet and sample 2 completed version 2, with both versions including the MST but differing on convergent measures; the two versions of the booklet were in English. Sample 1 consisted of 148 students, with n = 55 males (37%) and n = 93 females (63%), between the ages of 17 and 25, mean age $M = 19.71$, $SD = 1.30$. Sample 2 comprised 145 participants, with n = 53 (37%) males and n = 92 females (63%), mean age $M = 19.82$, $SD = 1.44$. Questionnaires were distributed during undergraduate introductory classes to ensure a variety of majors, with half of the class being given version 1 of the booklet while the other half filled version 2 of the booklet. The booklets took between 20 to 25 minutes to complete.

Measures

The *Mental States Task* (MST; Beaulieu-Pelletier et al., 2013) is a self-report questionnaire measuring mentalization. The participant is first primed by being shown the 3BM card of the TAT (Murray, 1971) and is then asked to write a short story elaborating on what happened before and what is happening during the depicted scene as well as describing the emotions the characters might be feeling. This is done in order to evoke emotional arousal and regulation strategies

Table 1. Cronbach's alpha of MST total scores and subscales.

			Beaulieu-Pelletier et al. (2013)	
	Sample 1	Sample 2	English MST	French MST
CONC	$\alpha = .65$	$\alpha = .72$	$\alpha = .82$	$\alpha = .77$
LoDef	$\alpha = .57$	$\alpha = .71$	$\alpha = .69$	$\alpha = .67$
IntDef	$\alpha = .46$	$\alpha = .34$	$\alpha = .62$	$\alpha = .70$
OBR	$\alpha = .76$	$\alpha = .66$	$\alpha = .70$	$\alpha = .72$
HiDef	$\alpha = .80$	$\alpha = .77$	$\alpha = .82$	$\alpha = .79$
REF	$\alpha = .36$	$\alpha = .50$	$\alpha = .66$	$\alpha = .58$

Note. Based on sample 1, N = 148 and sample 2, N = 145. CONC = Concrete, LoDef = Low defensive level, IntDef = Intermediate defensive level, OBR = Objective-rational, HiDef = High defensive level, REF = Reflective, Total = total score on MST.

in relation to the theme of loss. Next, the participant is asked to respond to 24 items (i.e. "I was afraid of what I was feeling" and "I thought that what the character was going through was not that bad"), rated on a 7-point Likert scale (from 1, completely disagree, to 7, completely agree), assessing mental states in relation to the previous task. Answers yield a total score as well as scores on six mental states reflecting the interaction between the activation of mental representation and openness to the subjective experience. From lowest to highest mental state functioning they include: Concrete Thinking (CONC), Low Defensive Level (LoDef), Intermediate Defensive Level (IntDef), Objective–Rational (OBR), High Defensive Level (HiDef), and Reflective Thinking (REF). As per Beaulieu-Pelletier et al. (2013), "the total MST equation is expressed as follows: Total MST = (CONC*1 + LoDef*1 + IntDef*1 + OBR*2+ HiDef*3 + REF*3) / (CONC + LoDef + IntDef + OBR + HiDef + REF)" (p.676), including weights to reproduce the reflective continuum.

The MST has yielded good reliability coefficients (0.79–0.58 for the English version and 0.82–0.62 for the French version; Beaulieu-Pelletier et al., 2013). Given that the MST is a novel measure and in consultation with the authors of the measure, this study investigated the sensitivity of the original English version of the MST in a Lebanese sample. Therefore, the MST and all subsequent measures were administered to participants in their original English version. Cronbach's alpha of the total MST scores and its subscales ranged between $\alpha = .36$ and $\alpha = .80$ in the two samples and are presented in Table 1.

Sample 1 measures

The *Reflective Functioning Questionnaire* (RFQ-54; Fonagy et al., 2016) is a self-report measure of the individual's capacity to mentalize themselves and others. It includes 54 items rated on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Respondents are asked about their capacities in thinking about or making sense of their own and others' cognitive and emotional experiences. Scores are based on two subscales, Uncertainty of Mental States (RFQu; "Sometimes I do things without really knowing why"), with lower scores reflecting genuine mentalizing, and Certainty about Mental States (RFQc; "People's thoughts are a mystery to me"), with higher scores reflecting genuine mentalizing (Fonagy et al., 2016). Scoring requires recoding six items for each subscale: for the RFQu items are rescored (0, 0, 0, 0, 1, 2, 3; with 3 = strongly agree) so that high scores reflect non-genuine mentalizing and for the RFQc, items are rescored (3, 2, 1, 0, 0, 0, 0 with 3 = strongly disagree) such that very low agreement reflects non-genuine mentalizing. Neutral scores on both scales reflect an acknowledgment of the opaqueness of mental states, characteristic of genuine mentalizing. The RFQ-54 have been shown to have good internal reliability (Cronbach's $\alpha = .82$) and convergent construct validity, correlating positively with measures of allied (but not equivalent) constructs, such as mindfulness, $r = .40$, $p < .001$, and cognitive empathy, $r = .48$, $p < .001$ (Moulton-Perkins et al., 2011).

The *Defense Style Questionnaire – 40* (DSQ-40; Andrews et al., 1993) is a self-report questionnaire assessing the 20 defense mechanisms consistent with the DSM-IV-TR which can be grouped as mature (including sublimation or humor among others), immature (passive aggression or acting out), and neurotic (displacement or repression). Items are rated on a 9-point Likert scale ranging from 1 (strongly disagree) to 9 (strongly agree). Sample items include "I'm a very inhibited person" and "I get physically ill when things aren't going well for me". It has demonstrated good construct and content validity and adequate reliability statistics with test-retest reliability ($r = .66$; Andrews et al., 1993).

The *Satisfaction with Life Questionnaire* (SWL; Diener et al., 1985) is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction. Items such as "In most ways my life is close to my ideal", are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

The *Rosenberg Self-Esteem Scale* (SES; Rosenberg, 1965) is a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. All items, such as "On the whole, I am satisfied with myself", are answered using a 4-point Likert scale format ranging from 1 (strongly agree) to 4 (strongly disagree).

The *Emotion Regulation Questionnaire* (ERQ; Gross & John, 2003) is a 10-item scale measuring respondents' tendency to regulate their emotions, with items rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Scores are divided into 2 subscales each representing an emotion regulation strategy: cognitive reappraisal ("When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about") and expressive suppression ("I keep my emotions to myself").

Sample 2 measures

The *Authenticity Inventory* (AI-3; Kernis & Goldman, 2006) comprises 45 items divided into four components: 1) *Awareness* of and trust in one's motives, feelings, and cognitions; 2) *Unbiased Processing* and not distorting or exaggerating internal experiences and externally based self-evaluative information; 3) *Behavioral Authenticity* and acting in coherence with one's values, preferences, and needs and 4) *Relational Orientation* and achieving openness in close

Table 2. Means, standard deviations and correlations between mental states modes combined sample.

	Mean (SD)		Correlations					
	Males	Females	1	2	3	4	5	6
CONC (1)	3.15 (1.16)	3.04 (1.28)	–					
LoDef (2)	3.11 (1.14)	3.17 (1.35)	−.13*	–				
IntDef (3)	2.22 (.97)	2.30 (1.05)	.29**	.02	–			
OBR (4)	3.76 (1.21)	3.52 (1.37)	.25**	−.09	.18**	–		
HiDef (5)	4.49 (1.37)	4.56 (1.63)	−.02	−.01	−.01	.26**	–	
REF (6)	4.43 (1.11)	4.49 (1.11)	−.23**	.22**	−.09	.13*	.36**	–
Total (7)	1.80 (.12)	1.82 (.14)	−.39**	−.35**	−.40**	.20**	.76**	.37**

Note. Based on the two samples combined. N = 293 (108 males, 185 females). CONC = Concrete, LoDef = Low defensive level, IntDef = Intermediate defensive level, OBR = Objective-rational, HiDef = High defensive level, REF = Reflective, Total MST = total score on MST.
*$p < .05$.
**$p < .01$.

relationships (Goldman & Kernis, 2004). Items such as "I am confused about my feelings" and "I find it easy to pretend to be something other than my true-self" are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A global score of authentic functioning combines scores on these four components with higher scores reflecting higher levels of authenticity.

The *Symptoms Checklist - Short Version Revised* (SCL-10R; Rosen et al., 2000) comprises 10 items and correlates at .95 with the full 90-item original scale. Participants are asked to rate the extent to which they have been bothered by each symptom ("Feeling blue" or "Difficulty making decisions") during the last month based on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The SCL-10R has been recommended for screening purposes in research for its accuracy and brevity (Cano et al., 2001; Muller et al., 2010).

The *Experience in Close Relationship - Revised* (ECR-R; Fraley et al., 2000) is a self-report assessing attachment anxiety and attachment avoidance specifically in relation to relationships with parents. It includes 36 items each rated on a 7-point scale (from 1, strongly disagree, to 7, strongly agree), 18 of which assess attachment-related anxiety ("I'm afraid that I will lose my parents' love") and 18 of which assess attachment-related avoidance ("I prefer not to show my parents how I feel deep down"). The anxiety and avoidance scales have demonstrated high internal reliabilities, with Cronbach's $\alpha = .95$; Cronbach's $\alpha = .93$ respectively (Sibley & Liu, 2004).

Results

Factor analysis

Given that the MST is a new measure, we conducted factor analysis combining both samples in order to investigate the validity of the six-subscale model presented by Beaulieu-Pelletier et al. (2013) in a Lebanese sample. The analysis was based on an N of 293, with $n = 108$ males and $n = 185$ females. Descriptive statistics and correlations between the scales are provided in Table 2. Total MST scores were found to be significantly correlated to all the MST subscales.

Table 3. Factor analysis MST scales.

	Factor Loading					
	1	2	3	4	5	6
Factor 1: High Defensive Level ($\alpha = .76$)						
24. I told myself that what the character was experiencing was difficult, but that he/she would not stay in this specific situation or position for a long time.	.84	−.05	−.06	.08	−.06	.05
12. I thought that the situation experienced by the character was difficult, but that things always settle down.	.76	.00	−.04	.04	−.06	.27
19. I was repeating to myself that with time things would return to normalcy for the character	.73	−.06	.15	.08	.11	.03
13. Although the character's situation was difficult, I felt the need to end my story in a positive way, so that I did not dwell on the negative	.70	.14	−.02	.23	.00	.00
Factor 2: Concrete Thinking ($\alpha = .62$)						
10. The material did not inspire any particular thoughts.	−.04	.77	−.10	.06	.12	−.09
15. I did not have much to write about	.04	.75	−.08	−.03	−.07	−.00
5. The image was not telling me much	−.01	.65	.01	.21	.23	−.14
1. I was not very inspired	.00	.62	.04	.17	−.05	.00
Factor 3: Low Defensive Level ($\alpha = .63$)						
16. I saw or I thought about horrible, scary things	−.05	.04	.74	.09	−.18	.10
18. I was afraid of the state I would be in once I would have completed the task	.06	.03	.70	−.05	−.08	−.30
2. I was afraid of what I was feeling	.06	−.04	.69	−.09	.12	.01
21. I was becoming aware of what was happening inside myself (thoughts, sensations, etc).	.08	−.11	.59	−.07	−.12	.35
20. I loved and hated the character	−.11	−.22	.55	−.04	.31	.01
Factor 4: Objective Rational ($\alpha = .67$)						
3. I was focused on the facts and	−.04	.11	−.07	.74	−.09	.12

(*continued*)

Table 3. Continued.

	Factor Loading					
	1	2	3	4	5	6
events of the story, like a detached observer						
8. I was mostly trying to focus on well structuring the story's facts and their sequence	.05	.18	.00	.73	.16	−.10
23. I was mostly trying to organize my thoughts well	.25	.05	.00	.71	.02	.05
14. I was writing in a journalistic manner (ex: reporting the facts, the events that occurred, the characters, etc).	.18	.06	−.08	.67	.16	.16
Factor 5: Intermediate Defensive Level ($\alpha = .25$)						
7. I thought that what the character was going through was not that bad	.06	.29	−.23	−.02	.66	.04
17. I found the character ridiculous to be affected that way	.15	.05	.04	.16	.58	−.20
9. The character amused me	−.12	−.13	.28	.08	.46	.11
4. I did not see any particular problem in the character's situation	−.11	.40	−.18	.05	.45	−.02
Factor 6: Reflective Thinking ($\alpha = .39$)						
22. The character's situation moved me, but I was not overwhelmed with sadness	.03	.01	−.04	.11	−.10	.75
11. I was touched by what the character was experiencing, without being distressed.	.25	−.13	.15	.13	.00	.62
6. The task triggered in me feelings that I was easily able to manage	.33	−.11	−.01	−.05	.21	.35

A confirmatory factor analysis (CFA) and principal axis factoring as the model of estimation was performed with varimax rotation on the combined sample of participants. Inspection of Eigen values revealed an initial 8 factor solution. However, inspection of item loadings on individual factors revealed that only one item loaded on each of these two additional factors. As a result, these two factors were dropped and a forced six factor analysis was performed. The model provided good fit to the data; X^2 (237, N = 293) =379.9, $p < .001$, CMIN/df = 1.6, RMSEA = .067, PCLOSE = .657, CFI = .883, SRMR = .0644 and AIC = 553.8, indicated the initial six factor structure was satisfactory. Factor loadings of items are presented in Table 3.

Table 4. Correlations between mental states modes and related constructs sample 1.

	M	SD	α	CONC	Lo Def	Int Def	OBR	Hi Def	REF	Total MST
RFQc	.60	.49	.46	.18*	−.17*	−.03	.18*	−.00	−.11	−.01
RFQu	.97	.57	.48	−.05	.17*	−.02	−.14	.08	.13	.02
DSQ mature	5.27	1.23	.67	.03	.09	.01	.08	.24**	.20*	.15
DSQ neurotic	5.33	1.34	.64	−.11	.30**	−.18*	−.08	.27**	.24**	.18*
DSQ immature	4.76	.86	.73	−.06	.40**	−.04	−.16	.21*	.18*	.03
SWL total	21.27	6.31	.79	.01	−.07	.10	.21*	.21*	.08	.15
SES total	21.68	5.20	.87	−.08	.19*	−.08	−.27**	−.19*	−.07	.20*
ERQ Cog Reap	28.49	6.64	.78	−.13	−.17*	−.08	−.05	.14	.16	.23**
ERQ Exp Sup	16.88	4.90	.63	−.01	.04	−.04	−.05	.04	.07	.03

Note. Based on sample 1. N = 148 (55 males, 93 females). CONC = Concrete, LoDef = Low defensive level, IntDef = Intermediate defensive level, OBR = Objective-rational, HiDef = High defensive level, REF = Reflective, Total MST = total score on MST, RFQc = Reflective Functioning Questionnaire Certainty about Mental States, RFQu = Reflective Functioning Questionnaire Uncertainty about Mental States, DSQ Mature = Defense Style Questionnaire Mature Defenses, DSQ Immature = Defense Style Questionnaire Immature Defenses, DSQ Neurotic = Defense Style Questionnaire Neurotic Defenses, SWL = Satisfaction with Life, SES = Self-Esteem Score, ERQ Cog Reap = Emotion Regulation Questionnaire Cognitive Reappraisal Strategy, ERQ Exp Sup = Emotion Regulation Questionnaire Expressive Suppression Strategy.
*$p < .05$.
**$p < .01$.

Sample 1

Data from this sample was used to examine correlations between the six MST mental states and another measure of mentalization (RFQ), as well as defenses (DSQ), quality of life (SWL), self-esteem (SES) and emotion regulation (ERQ). Correlations are detailed in Table 4.

Sample 2

Similarly for sample 2, correlations were examined between the MST total score and the six MST mental states and measures of authenticity (AI), psychological symptomatology screener (SCL) and attachment (ECR-R). Correlations are presented in Table 5.

Discussion

The aim of this study was to explore mentalizing capacities in Lebanese undergraduate students using a newly developed measure, the Mental State Task (MST), which taps into one's capacity to reflect on emotions in the here-and-now, after completing an emotionally loaded task. Given the novelty of this tool, we first explored its psychometric properties. Factorial analysis revealed a satisfactory fit of the six factor structure, with the MST yielding a total score, as well as scores on 6 subscales, divided on a continuum from low to high mentalizing as presented in the Bouchard et al. (2001) and Beaulieu-Pelletier et al. (2013) models, with one exception. In the original study, item 21 loaded on the Reflective Thinking subscale, whereas it loaded higher on the Low Defensiveness subscale in our sample. Given that this was the sole minimal difference found, we decided to keep the initial six-factor structure of the MST as this

Table 5. Correlations between mental states modes and related constructs Sample 2.

	M	SD	α	CONC	Lo Def	Int Def	OBR	Hi Def	REF	Total MST
AI Total	155.90	16.50	.81	−.80	−.30**	−.21*	−.01	.08	.08	.31**
AI Aware	43.63	6.44	.75	−.40	−.28**	−.18*	.05	.02	.03	.23**
AI Unb Proc	29.95	5.83	.66	.05	−.30**	−.10	−.13	−.04	−.08	.17*
AI Beh Aut	37.51	5.31	.53	−.01	.15*	−.05	.02	.08	.06	.16
AI Rel Ori	44.80	5.57	.63	−.14	−.08	−.27	.04	.19*	.21*	.33**
SCL Total	16.54	9.11	.86	−.13	.48**	.13	−.07	−.03	.11	−.24**
ECR Anxiety	2.49	.90	.83	−.11	.23**	.04	−.04	.07	−.03	−.06
ECR Avoid	4.18	.73	.55	.14	.01	−.09	.19*	.05	.10	.05

Note. Based on sample 2. N = 145 (53 males, 92 females). CONC = Concrete, LoDef = Low defensive level, IntDef = Intermediate defensive level, OBR = Objective-rational, HiDef = High defensive level, REF = Reflective, Total MST = total score on MST, AI Total = Authenticity Inventory Total Score, AI Aware = Authenticity Inventory Awareness and trust of one's motives, feelings, and cognitions, AI Unb Proc = Authenticity Inventory Unbiased Processing, AI Beh Aut = Authenticity Inventory Behavioral Authenticity, AI Rel Ori = Auhtneticity Inventory Relational Orientation, SCL = Symptoms Checklist, ECR Anxiety = Experiences in Close Relationship Attachment Anxiety, ECR Avoid = Experiences in Close Relationship Attachment Avoidance.

*$p < .05$.

**$p < .01$.

difference could be spurious. Here it is important to note that, despite the satisfactory factorial analysis, the reliability of some MST subscales was lower in our sample (Table 1) than initially found in both the English and French samples of the original study (Beaulieu-Pelletier et al., 2013). We therefore advise a cautious analysis of the Intermediate Defensive Level and Reflective subscales results.

Similarly to the Beaulieu-Pelletier et al. (2013) study, significant correlations were found between the six mental states, with the low mentalizing subscales (concrete thinking, low defensive level, intermediate defensive level) negatively correlated with high mentalizing subscales (high defensive level and reflective thinking) and the total MST score. The correlations were moderate to low revealing that subscales are distinct, each measuring a different component of mentalization.

In Sample 1, the first hypothesis posited that total MST and high mental states scores will be positively correlated with mature defenses and a similar but not identical measure of mentalization, the RFQ. This hypothesis was only partially supported as only some subscales of the MST (lower mental states) but not the total MST score were found to be significantly correlated with the RFQ subscale scores. Although both self-report questionnaires measure mentalizing capacities, the RFQ and MST differ with respect to the presentation of scores and the main investigated facet of mentalizing. On the one hand, the RFQ provides researchers with levels of non-genuine mentalizing based on its two subscales, focusing mainly on highlighting deficits in regulation of disruptive affects as well as in the reflective stance (Bouchard et al., 2008; Fonagy et al., 2016). In addition, the RFQ has been validated with a clinical population of borderline personality disorder and has been advised to be used in populations where a vast variance in mentalizing capacities is to be expected (Luyten et al., 2019), which could explain the low internal consistency of the RFQ subscales.

The MST presents, alongside an overall score, a more detailed continuum of mental states, depending on their contribution to mentalization, focusing on ones' attitude toward mental content during and after emotionally loaded situations, emphasizing the types of defenses used (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2008). The innovative aspect of the MST is its use of a TAT card, making it flexible in priming participants into reflecting about a particular relationship or event as well as about themselves in reaction to that relationship or event, thus allowing the scoring of presently active mental states, emotion regulation and defensive strategies (Beaulieu-Pelletier et al., 2013; Beaulieu-Pelletier & Philippe, 2016; Bouchard et al., 2008).

Another important feature of the MST, unlike the RFQ, is the identification of the type of defenses used (Beaulieu-Pelletier & Philippe, 2016; Bouchard et al., 2008). In this study, the highest correlation was observed between immature defenses (projection, passive aggression, acting out, fantasy, hypochondriasis, and dissociation) and the Low Defensiveness subscale. Beaulieu-Pelletier et al. (2013) described this mental state as reflecting an inability to regulate emotions, perceiving emotional experiences as threatening, thus resorting to immature defenses. As expected, mature defenses (sublimation, suppression, anticipation, altruism, and humor) were positively correlated with higher mental states, suggesting one's ability to recognize, analyze and make sense of affective experiences, without perceiving them as threatening (Bouchard et al., 2008).

Interestingly, neurotic defenses (displacement, repression, isolation, and reaction formation) were found to be positively associated with both, lower and higher mental states. Here, it is important to highlight the differentiation between defense mechanisms and mental states; although the two concepts are related, "defense mechanisms do not reflect the quality of mental representations, as they only become operative to help the person protect against self-threatening mental contents" (Beaulieu-Pelletier et al., 2013, p. 673). It is therefore not surprising to have higher mentalizing capacities while still resorting to neurotic defenses at times. The use of this type of defenses across both low and high mental states could also be explained by taking into account some cultural factors. Lebanon has been described as tending to be a collectivistic society in which self-definition is based on social attributes and roles (Al-Shqerat & Al-Masri, 2001; Dwairy et al., 2006; Qasem et al., 1998); fitting in might necessitate constraining some inner desires in order to ensure group harmony (Markus & Kitayama, 1991). It would therefore ensue that whether a culture qualifies as individualist or collectivistic might affect defense styles used, as the aim would be the coherence of the unit rather than the self (Varela et al., 2007). This may explain why defenses considered neurotic (such as repression) in the Western world are seen as adaptive in the Lebanese, collectivistic culture. Future research in necessary to further elucidate this argument.

Second, in Sample 1, we analyzed correlations between the MST and measures reflecting adjustment including satisfaction with life, self-esteem and emotion regulation. This hypothesis was partially supported with total MST scores positively and significantly associated with higher self-

esteem, in line with previous studies (Beaulieu-Pelletier et al., 2013; Kawamichi et al., 2018), and the cognitive reappraisal emotion regulation strategy. It can be hypothesized that higher mentalizing capacities facilitate one's reevaluation of an emotionally-loaded situation in a way to decrease its emotional impact on the self. This strategy was negatively correlated with the Low Defensiveness subscale, characterized by an inability to make sense of one's subjective experience (Beaulieu-Pelletier et al., 2013; Marszał & Janczak, 2018), suggesting a difficulty in using this adaptive emotion regulation strategy. This echoes previous studies suggesting an inverse association between mentalizing and alexithymia, the inability to ascribe emotions to subjective internal experiences (Fonagy & Bateman, 2007; Lemche et al., 2004).

In Sample 2, we investigated the association between the MST and measures of psychological adjustment and authenticity. In line with our expectations, higher mentalizing scores were associated with less psychological symptoms and the Low Defensiveness mental state was linked with higher scores on the symptoms checklist. This finding relates to Allen et al. (2003) suggestion that "psychiatric disorders involve persistent or intermittent misinterpretations that give rise to rigid, automatic and maladaptive patterns of coping, feeling and behaving" (p. 6). In this sense, it could be posited that mentalizing capacities provide the basis for one's flexibility in entertaining alternative interpretations for others' behaviors and facilitate coping with emotional situations.

Authenticity refers to one's openness to subjective experience based on a sense of agency and self-awareness (Kernis & Goldman, 2006). As expected, the unidimensional authenticity total score was positively and moderately correlated with the MST total score. This can be explained by looking at correlations between MST scores and the authenticity subscales, all of which were positively correlated to the total MST score except the Behavioral Authenticity, the latter tapping into whether one would act upon their values and needs. It can be argued that mentalization, as measured by the MST, reflects one's psychological ability to be aware of mental states and process them in a mature non-defensive way, in order to acknowledge genuine interpersonal feelings. In contrast to the Behavioral Authenticity subscale, the total MST score does not focus on the behavioral consequences of mentalizing. Deficits in mentalizing, as reflected by lower mental states, were negatively correlated with authenticity, shedding light on the difficulty to be aware of emotions using unbiased processing.

In Sample 2, we also expected to find a significant association between MST scores and attachment, based on the extensive literature linking these two constructs (Bouchard et al., 2008; Fonagy et al., 1991; Jurist & Meehan, 2009). Contrary to our expectations, attachment anxiety was only positively weakly correlated with Low Defensiveness, and attachment avoidance with the Objective Rational scale. The lack of association between attachment and the MST total score could be explained by the type of measure used. In fact, previous studies highlighting a positive association between mentalization and attachment were based on interview narratives discussing the ongoing attachment relationship (Grienenberger et al., 2005; Slade et al., 2004). These were then rated on reflective functioning based on the overall state of mind with regards to the relationship rather than one's own awareness of subjective experience based on a specific emotional stimuli. It can therefore be argued that MST scores represent a continuum of mentalization that is more closely related to authenticity, subjective experience, emotion regulation, and defensive style than to attachment relationships.

Finally, this study attempted to replicate Beaulieu-Pelletier et al. (2013) in describing a distinct portrait of each of the six MST subscale, based on the differences in correlations with other convergent measures.

Concrete Thinking was defined as an inability to make sense of subjective experiences and integrate them into a coherent narrative, without necessarily defending against them (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001). In our sample, it was only found to be weakly positively correlated with the RFQ certainty about mental states. This shows that, at times, people who score high on concrete thinking are still able to genuinely mentalize. The lack of a significant association with adjustment measures (satisfaction with life and psychological symptoms) suggest an interesting split between quality of life and the concrete thinking level of mentalizing, in line with Beaulieu-Pelletier et al. (2013).

Low Defensive Level was characterized by a high level of immature defenses against internal subjective experiences, which tend to be perceived as threatening (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001). In this study, this mental state was weakly correlated with non-genuine mentalizing. As expected, it was moderately correlated with both, neurotic and immature defenses. People scoring high on this mental state showed difficulty in cognitive reappraisal as an emotion regulation strategy and were more likely not to be authentic (open to subjective experience) and unlikely to be aware of mental states or use unbiased processing. They also tended to score higher on attachment anxiety, entailing an overinvestment in relationships at the expense of one's own subjective experience and were more likely to score high on psychological symptomatology.

Intermediate Defensive Level was described as the ability to partly acknowledge and elaborate on subjective experience despite some defending against it (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001). Our findings reveal a negative weak association with neurotic defenses with no other type of defenses used. This is in line with Vaillant's (1994) hierarchal arrangement of defenses whereby neurotic/intermediate defenses constitute a move from immature to mature defense styles (Cramer, 2015), which characterize this intermediate defensive level of mentalizing. There were moderate to low negative correlations between this defensive level and authenticity, specifically the awareness subscale. It can be hypothesized that the negative correlation with authenticity could relate to a lower awareness of mental states which could be translated in under-reporting some difficulties or symptoms.

Objective–Rational was defined as a distancing from subjective experience despite acknowledging it, thus leading to interpersonal problems (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001). This echoes our results of a significant association with attachment avoidance, entailing dismissing and distancing oneself from emotions elicited in the context of interpersonal relationships. Given that this subscale was the only one to be significantly associated with attachment avoidance, it would be of interest to further explore the interplay between these two constructs, especially that people scoring high on this mental state were likely to have lower self-esteem. They did however exhibit some ability to mentalize, as shown by the weak associated with the RFQ certainty subscale, and satisfaction with life.

High Defensive Level is the first of the higher mental states, presenting a beginning of openness to experience despite some mature defenses and healthy emotion regulation strategies used (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001). In our sample, people scoring high on this mental state were likely to oscillate between the uses of the three types of defenses. This relates to the definition of this mental state as presented by Bouchard et al. (2001) stating that there is an initial movement toward openness to subjective experience, followed by a retraction using defenses. In addition, this score was weakly but positively related to the relational orientation of the authenticity scale as well as increased satisfaction with life. Results of this subscale echo Cramer's (1987, 2015) definition of mature defenses which requires complex cognitive capacities of differentiating between one's own mind and that of the other, in line with Fonagy and colleagues' (Fonagy et al., 2011, 2004) characterizing of mentalizing.

Reflective Thinking, was described as the full capacity to explore and make sense of subjective experiences of the self and the other (Beaulieu-Pelletier et al., 2013; Bouchard et al., 2001). In this study, it was characterized by the ability to use any type of defenses, similarly to the previous level of mentalizing, and by a positive correlation with relational orientation, representing an openness to interpersonal relationships.

The *Total MST* score, higher scores reflecting more genuine mentalizing, was positively correlated with self-esteem and the use of the cognitive reappraisal, an adaptive emotion regulation strategy. Furthermore, it related to higher authenticity scores with all subscales besides the Behavioral Authenticity, as the MST taps into the more internal aspect of mentalization. Finally, higher MST total scores were negatively correlated with psychological symptomatology. Interestingly, the only significant, albeit weak correlation with the DSQ was with the use of neurotic defenses. This finding merits further investigation focusing on the types of defenses used, looking for potential cultural factors explaining this variance such as attachment and parenting styles. It is therefore advised, at least in a Lebanese sample, to use the full continuum of MST subscales in terms of research on defenses as they tend to provide a more complete and complex understanding of defensive style according to mental states representations.

Despite the uniqueness of this study, it is not without its limitations. First, it relied solely on self-report measures which have been criticized for biasing responses to be self-serving and for limiting answers. Future studies could compare mentalizing based on the MST and interview narratives, providing more in-depth information about one's state of mind in relation to attachment relationships, providing the basis for the development of mentalizing capacities. Second, our sample was recruited in a private university which limits generalizability of results to different socio-economic status and age groups. Third, in accordance with the initial validation study (Beaulieu-Pelletier et al., 2013) we used Plate 3 of the TAT evoking the theme of loss, limiting the generalizability of MST states portraits to other themes. Fourth, some of the MST subscales yielded low internal consistencies and further studies would benefit in exploring whether items might load higher in different subscales. This might lead to a different description of each level of mentalizing based on the MST. And fifth, we used the English version of the MST on an English speaking Lebanese undergraduate sample attending a large English speaking American university. Further steps would be to translate the MST into Arabic and test its validity on a more diverse and representative Lebanese Sample. Future studies should explore the factor structure of the MST in order to investigate which mental state subscale item 21 would load higher on, to elucidate whether our results were due to a spurious relationship or potentially reflect cultural differences.

In sum, this study is the first to use a novel tool of mentalization, the Mental States Task, in attempting to present portrait of the different mental states of the MST continuum in a Lebanese sample. Results support the use of this measure, based on the total score; however, the differentiation between each of the mental states was only partially supported based on their association with convergent constructs. It would be important to further corroborate these findings, possibly using other TAT plates priming different themes. It would also be of interest to administer this measure in a clinical sample as findings could be better compared with those of the RFQ, in attempting to better understand failures in mentalizing. Finally, future investigations could focus on studying the defensive styles used by the Lebanese population in order to further elucidate the contradictory findings with Western results. Mentalization studies are relatively new in the Middle East, we hope to draw a clear picture of this construct in the future.

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