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Affective and cognitive theory of mind in borderline personality disorder: The role of comorbid depression



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ABSTRACT

Disturbed interpersonal relationships and misreading of others' intentions are core symptoms of borderline personality disorder (BPD). Despite these impairments, some studies have found an enhanced theory of mind (ToM) in BPD patients. Taking this into consideration, the current study attempts to further understand these discrepancies by separating ToM into two domains: affective and cognitive. Moreover, the study considered the role of comorbid symptoms of depression in these patients. Subjects were 21 patients with BPD, 23 patients with BPD and comorbid major depressive disorder (MDD), and 25 healthy controls (HC). ToM was measured with the Reading the Mind in the Eyes Test (RMET) and the Faux Pas Task, which assessed the affective and cognitive aspects of ToM, respectively. In addition, all participants were evaluated with the Beck Depression Inventory (BDI). Results showed that in both BPD groups (i.e., BPD without MDD and BPD with MDD) affective ToM scores were higher than in the HC group; however, in the cognitive ToM, the HC group performed better than the both BPD groups. Also, overall the BPD group with MDD had decreased ToM skills. Finally, BPD groups received greater scores on the BDI as compared to the HC group.

1. Introduction

“Theory of mind (ToM)” is the ability to discriminate and judge mental states (i.e., wants, needs, beliefs, knowledge, emotions, etc.) of oneself and others (Frith, 1989; O'Neill et al., 2015; Premack and Woodruff, 1978). Mental state discrimination is one of at least two dimensions of mentalization (Sabbagh, 2004). These two dimensions are: (1) detecting and discriminating social stimuli in the immediate environment (e.g. using facial expression to detect that someone is in a happy state of mind) and (2) making inferences, or reasoning, about those stimuli (e.g. detecting that someone is happy because they needed money and won the lottery). This ability stems from a variety of sources such as non-verbal cues, facial expressions, and beliefs of others (Frick et al., 2012; Frith and Frith, 2006). Since ToM plays an important part in social cognition, ToM ability is considered a skill only for humans, playing a vital role in interaction and everyday functioning (Adolphs, 2003; Frick et al., 2012; Herrmann et al., 2007).

Literature has shown that there are ToM deficits in many psychological and neurological disorders (Bora et al., 2015, 2016; Nejati et al.,

2012; Schuwerk et al., 2015; Wang et al., 2008; Wolkenstein et al., 2011). In addition, the capacity of ToM is presumed to be the key element of disturbance in interpersonal relationships of individuals diagnosed with borderline personality disorder (BPD) when compared to healthy controls (HC) (Bouchard et al., 2010; Frick et al., 2012).

BPD is distinguished by instability in affect, self-image, and interpersonal relationships mainly within social contexts (American Psychiatric Association (APA), 2013; Roepke et al., 2013). Impaired interpersonal assessments such as fear of abandonment along with extreme positive and negative views of significant others are some of the major deficiencies that BPD patients endure in their interpersonal relationships (Baryshnikov et al., 2016; Macfie et al., 2014). The above-mentioned assessments can impede treatment involvement as well as induce suicidal and self-injurious behaviors in BPD patients (Brodsky et al., 2006). Thus, the evaluation of social cognition in individuals with BPD has been considered not only an interesting area of study but the aim of many treatment strategies (Barnow et al., 2012; Fertuck et al., 2009).

Literature has been consistent regarding the existence of

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impairment in ToM abilities in BPD as compared to HCs; however, there is disagreement on the specific type of ToM that is impaired (Harari et al., 2010). Reasons for this inconsistency are two-fold; among previous studies there is a focus on only the affective ToM whereas in more recent studies there is a definition of ToM that considers two distinct and discrete neurobiological substrates: the social-perceptual (affective) aspect and the social-cognitive aspect (Sabbagh, 2004; Sabbagh et al., 2009; Tager-Flusberg and Sullivan, 2000; Wang et al., 2008).

The social-perceptual aspect, also known as the “affective aspect” of ToM, is the ability to decipher and discriminate others’ mental states based on available information which can be detected by the observer in the immediate environment (Tager-Flusberg and Sullivan, 2000). The neurobiological substrates of this aspect are mainly located in the amygdala, the medial temporal structures, and the frontal lobe (Adolphs et al., 2002; Sabbagh et al., 2004).

The social-cognitive aspect, also known as the “cognitive aspect,” of ToM refers to the ability to reason about the aforementioned states through interpretation or prediction of others’ behavior (Tager-Flusberg and Sullivan, 2000). The medial frontal area of brain has been identified as the most significant region corresponding with this aspect of ToM (Frith and Frith, 2001; Siegal and Varley, 2002).

Despite these clear differences in the affective and cognitive aspects, limited research has assessed the simultaneous differences between both aspects in ToM. Of those studies that have looked at the separate aspects of each (i.e., cognitive or affective alone), results are sparse and inconsistent. Of the literature that has examined cognitive aspects of ToM in BPD, results have only and are continuing to only report disturbances and impairments (Preissler et al., 2010). For those on the affective aspects in ToM, literature has found inconsistent results within the Reading in the Mind of the Eyes Test (RMET); some studies have found hypersensitivity and an enhanced mental state discrimination compared to HCs (Fertuck et al., 2009; Frick et al., 2012; Richman and Unoka, 2015) whereas other studies found decreased abilities as compared to HCs (Preissler et al., 2010; Schilling et al., 2012). In addition, in a meta-analysis of the RMET in BPD samples (Richman and Unoka, 2015), a decreased ability overall in BPD patients as compared to healthy controls was found. The RMET is a measure of the first ‘discrimination’ aspect of mentalization, but not the second. Consequently, the RMET almost used for measuring of affective ToM (Sabbagh, 2004; Tager-Flusberg and Sullivan, 2000, Fertuck et al., 2012).

Literature has found a conglomerate amount of research on the comorbidity of BPD with major depressive disorder (MDD) (Comtois et al., 1997; Gunderson and Phillips, 1991; Levy et al., 2007), which has raised another controversial question about the possible impact of depressive symptoms on the performance of BPD participants when they are asked to do ToM tasks (Richman and Unoka, 2015). In spite of the several studies indicating ToM deficits of patients suffering from MDD (Nejati et al., 2012; Wang et al., 2008; Wolkenstein et al., 2011), the results of the few studies conducted to evaluate the impact of depressive symptom severity on the performance of BPD patients have been inconsistent. While Fertuck et al. (2009) reported a positive influence of depression severity on the performance of BPD group in the RMET, the research findings of Frick et al. (2012) demonstrated that the performance of BPD patients in the RMET is independent of their depression severity. In the meta-analysis by Richman and Unoka (2015) looking at RMET scores in BPD patients, authors found enhanced affective ToM abilities in the RMET in those with comorbid BPD and MDD as compared to BPD without comorbid MDD.

As a result, the aim of the current study is to simultaneously evaluate the two ToM aspects (affective and cognitive) in BPD patients as compared to healthy controls. The study also focuses on the aspects of comorbidity by dividing the BPD subjects into two groups: BPD with comorbid MDD and BPD without comorbid MDD. Depression severity is also considered in both aspects of ToM as a possible factor contributing to ToM abilities.

Based upon the literature reviewed, BPD patients’ performance is

expected to be accompanied by more dysfunction, disturbance, and impairment when they perform the cognitive task of ToM as compared to when they do the affective one. In other words, it is probable that the superiority of ToM ability of patients with BPD, which has been examined in former studies, is solely confined to the affective aspect of ToM.

2. Method

2.1. Participants

Our sample included 44 adult inpatients diagnosed with BPD from mental health hospitals in Tehran, Iran. Patients were recruited from two acute psychiatric wards. The patients met at least five of nine symptoms as listed in the Diagnostic Statistical Manual (DSM-IV-TR; American Psychiatric Association, 2004) as criteria for BPD. Following this, they were fit into two trial categories based on the comorbidity or non-comorbidity of BPD with MDD. After assessment, 21 inpatients met the diagnostic criteria for BPD with MDD (BwM group), and 23 inpatients met diagnostic criteria for BPD without MDD (BwoM group). Exclusion criteria for the BPD sample were the following: a) any current or past diagnosis of a psychotic disorder, and/or b) autism spectrum or any developmental disorders, and/or c) bipolar disorder and/or d) any neurological diseases such as epilepsy, Parkinson’s disease, or severe head injury. In addition, they were excluded if they had any substance abuse issues during the preceding six months.

The healthy control group (HC) contained 25 healthy volunteers, who were recruited through both the psychiatric institute and two universities in Tehran, Iran. None of the participants in HC group had a history of any DSM-IV Axis I or Axis II disorders, a brain injury, neurological diseases, and/or evidence of current or past substance abuse. Moreover, all participants satisfied the following criteria: they all were a) at least 20 years old, b) capable of understanding the experimental procedure, c) right-handed, and d) had normal visual and auditory senses. The ethics committee of the Faculty of Psychology and Education of Shahid Beheshti University approved the procedure. All of participants gave informed consent.

In previous literature, it has been found that handedness has a significant role in the processing of emotional information (De Nooijer and Willems, 2016; Wang et al., 2008). Because of the relationship between processing of emotional information and theory of mind, we only used right-handed individuals in this study.

2.2. Clinical assessment

For both patient groups, diagnoses were established by the Persian version of Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; Sharifi et al., 2009) and the Persian version of the Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II; Sharifi et al., 2009). Axis I and II comorbidities in the patients was present, as is typical in BPD samples. (See Appendix A). The Persian scale of the SCID has good psychometric properties (Sharifi et al., 2009).

The Persian version of Beck Depression Inventory (BDI-II; Ghassemzadeh et al., 2005), a 21-item self-report measure that assesses the severity of depressive symptoms along with its existence, was used to assess symptom severity of depression symptoms. In line with Beck and colleagues (1996), we used the following standard scores as cut-offs: 0–13 as a minimal range of depressive symptoms, 4–19 as a mild range depressive symptoms, 20–28 as a moderate range of depressive symptoms, and 29–63 as a severe range of depressive symptoms. The Cronbach’s alpha of the BDI in this study was 0.82. In addition, to evaluate the participants’ intelligence, we also employed the Wechsler Adult Intelligence Scale-Revised Version (WAIS-R; Wechsler, 1981).

Table 1
Comparisons of demographic data and clinical data among groups.

	HC (n=25)	BwM (n=21)	BwoM (n=23)	Statistics
Sex ratio (M: F)	13:12	11:10	12:11	$\chi^2=0.01, p=0.725, n.s.$
Index age (years)	27.52 ± 4.46	26.60 ± 5.62	25.78 ± 5.29	$F(2,68)=1.793, p=0.097, n.s.$
Education levels (years)	14.03 ± 1.89	13.58 ± 1.35	13.13 ± 1.65	$F(2,68)=1.362, p=0.459, n.s.$
IQ	108.27 ± 6.47	106.41 ± 8.73	105.58 ± 5.58	$F(2,68)=0.150, p=0.861, n.s.$
BDI-II scores	6.11 ± 3.28	37.10 ± 4.42	23.15 ± 4.18	$F(2,68)=55.378, p=0.001$ BwM > HC ^c , BwoM > HC ^c , BwM > BwoM ^d

Note. HC = healthy controls, BwM = BPD with MDD, BwoM = BPD without MDD, n.s. = not significant.

** $p < 0.05$.

* $p < 0.01$.

2.3. TOM tasks

2.3.1. Reading in the mind of the eyes task

To measure the affective aspect of ToM, we utilized the Persian version of Reading in the Mind of the Eyes test (RMET; Khorashad et al., 2015). This task consists of 36 black-and-white photographs of the same size (15 cm × 6 cm) from the eyes area of confederate actors. Three mental states are presented (i.e., neutral, negative, and positive). The participant is requested to select the option which could best represent the mental state of the picture. Moreover, as a control task, volunteers were required to express their opinions of the gender in each picture (gender recognition). There was no time limit for answering questions. The total score for each participant in the two tasks is calculated based on the total of the participant's correct response to each picture; the highest score a participant can acquire is 36. In addition to the two above-mentioned scores, in agreement with the Harkness et al. (2005) study and the Richman and Unoka (2015) pattern, three subscales were also calculated based upon the value of each mental state. In accordance with this pattern, the 36 photographs fit into three separate categories depending on the positive, negative, and neutral values of each mental state (i.e., 8 positive, 12 negative, and 16 neutral stimuli). Previous studies indicated the attentional bias to negative stimuli in depressed individuals (Everaert et al., (2012, 2014); Duque and Vázquez (2015), so in this study we used this scoring for accurate differentiation of BPD with MDD and without MDD (In order to accurately distinguish between depressed and non-depressed individuals) in discrimination of positive and negative mental states.

2.3.2. Faux pas task

The faux pas task was used to assess the cognitive aspect of ToM. This test composed of 20 short stories; half of them included a faux pas while the other half excluded a faux pas, considered as control stories. According to Baron-Cohen et al. (1999), the Faux Pas occurs when a speaker says something without considering if it is something that the listener might not want to hear or know. It also typically has negative consequences that speaker never intended (See Appendix B). There were no time limits, and therefore, to understand the story entirely, volunteers could read it repeatedly. At the end of every story there were two faux pas questions together with two control ones. The faux pas questions were about the main character's intentions and were designed to assess the participant's thorough understanding as to whether or not they could recognize that a faux pas had occurred in the story.

The control questions aimed to check the reader's full comprehension of the story. In the Faux Pas Task, participants who answered "yes" to the first question (i.e., In the story you just read, has there been a faux pas and/or an embarrassing mistake in a social situation?) were required to answer the next faux pas question; meanwhile, in such case, in the stories involving a faux pas, one score was saved for each correct response. In case the subject's answer to the first question was "no," they were not asked the subsequent question. However, all participants were required to answer the two control questions, even if their answers to the first question had been negative. Ultimately, 20 was the

maximum score a participant could achieve on the Faux Pas questions, and 40 on the control ones.

2.4. Statistical analysis

Before the use of parametric tests to compare groups was undertaken, Kolmogorov–Smirnov tests to assess normality and Levene's tests to assess homogeneity of variance were performed for demographic, clinical, and ToM tasks scores. We employed a Pearson's Chi-squared test to analyze the sex ratio of the groups and a parametric one-way analysis of variance (ANOVA) for index age, educational level, IQ, and the BDI-II score. Furthermore, multivariate analysis of variance (MANOVA) was used to compare groups in the RMET. Because of the lack of homogeneity of variances for data of Faux Pas, a nonparametric Kruskal–Wallis test was used to compare the three groups.

3. Results

3.1. Demographic and clinical data

The demographic characteristics of the two groups of patients and control participants can be seen in Table 1. As it can be shown in Table 1, there was no significant difference among participants in the three groups regarding index age, educational level, and IQ; however, when comparing the clinical data with respect to BDI scores, both the BPD with MDD group and the BPD without MDD group had higher scores than HCs. Furthermore the BPD with MDD group had higher scores than the BPD without MDD group [$F(2,68)=55.378, p=0.001$].

3.2. Comparisons of Mind Reading and Faux Pas Questions among three groups

Table 2 shows the performance differences between the three groups in the cognitive and affective aspects of ToM. The MANOVA revealed a significant main effect for group affective aspects of ToM [$F=7.93, (df=2,68), p < 0.001$]. Furthermore, the Kruskal–Wallis nonparametric test showed significant differences between the three groups in the cognitive aspect of ToM.

First, we found significant differences among groups for ToM ($F(2,68)=39.738, p > 0.001$). This is also the case among mental states stimuli in the RMET: positive ($F(2,68)=28.347, p > 0.001$), negative ($F(2,68)=34.487, p > 0.001$), and neutral [$F(2,68)=24.715, p=0.001$]. Post-hoc comparisons (Bonferroni correction) indicated that BwoM patients outperformed BwM ($p > 0.001$) and HC ($p > 0.001$) in the RMET test. The performance of BwM in the RMET test was significantly higher than that of HC group [$p > 0.001$]. More specifically, in the positive stimuli of RMET, the BwoM patients performed better than BwM ($p > 0.001$) and HC ($p > 0.001$). Additionally, the HC group performed significantly higher than the BwM patients in the positive stimuli of RMET [$p=0.018$]. In contrast, in the negative stimuli of RMET, BwM outperformed BwoM ($p=0.05$) as well as the HC group ($p > 0.001$). There was also a trend towards better performance in the

Table 2
Comparisons of ToM performance among groups.

	HC (n = 25)	BwM (n = 21)	BwoM (n = 23)	Statistics	η^2
ToM tasks					
Mind Reading	24.93 ± 4.79	26.60 ± 5.62	29.88 ± 5.89	$F(2,68) = 39.738, p = 0.001$ BwM > HC*, BwoM > HC*, BwM > BwoM*	0.21
Positive	7.35 ± 1.19	4.29 ± 1.35	9.15 ± 1.55	$F(2,68) = 28.347, p = 0.001$ BwoM > HC*, BwoM > BwM*, HC > BwM*	0.13
Negative	6.37 ± 1.17	15.21 ± 2.16	13.58 ± 1.98	$F(2,68) = 34.487, p = 0.001$ BwM > BwoM*, BwM > HC*, BwoM > HC*	0.18
Neutral	11.21 ± 1.68	7.10 ± 1.62	7.15 ± 2.11	$F(2,68) = 24.715, p = 0.001$ HC > BwoM*, HC > BwM*	0.11
Gender Recognition	33.58 ± 2.29	33.28 ± 1.47	33.46 ± 1.95	$\chi^2(2,69) = 0.251, p = 0.851, n.s.$	0.000
Faux Pas Questions	18.81 ± 0.91	13.37 ± 1.47	16.18 ± 2.18	$\chi^2(2,69) = 68.572, p = 0.001$ HC > BwoM*, HC > BwM*, BwoM > BwM*	0.26
Control Questions	39.41 ± 0.58	39.26 ± 0.46	39.59 ± 0.42	$\chi^2(2,69) = 0.368, p = 0.826, n.s.$	0.000

Note. HC = healthy controls, BwM = BPD with MDD, BwoM = BPDwoMDD, n.s. = not significant.

** $p < 0.05$.

* $p < 0.01$.

negative stimuli of RMET in BwoM group than HC ($p > 0.001$). Regarding the neutral stimuli of RMET, however, the HCs correct response rate was significantly higher than that of BwM ($p = 0.001$) and BwoM ($p > 0.001$). While no significant difference was found between the two BPD groups ($p > 0.08$).

Second, the results of Kruskal–Wallis nonparametric test which was used to assess the difference among groups in the variance of Faux Pas Questions showed a significant difference among groups [$\chi^2(2, 69) = 68.572, p > 0.001$]. Moreover, we conducted Mann–Whitney U nonparametric tests in multiple comparisons for Faux Pas Questions. The results showed that the BwM group performed worse than HCs (Mann–Whitney $U = 0.001, Z = -6.725, p = 0.001$) and the BwoM group (Mann–Whitney $U = 134.963, Z = -3.255, p > 0.001$). Also, the performance of BwoM group was worse than that of HCs (Mann–Whitney $U = 158.261, Z = -5.394, p > 0.001$). Fig. 1 illustrates the performance of the three groups on RMET and Faux Pas tests.

4. Discussion

To the best of our knowledge, this is the first study measuring both aspects of ToM: affective and cognitive. Moreover, it is the first to look at these aspects with the effect of co-morbid major depression. In conformity with prior studies (Fertuck et al., 2009; Frick et al., 2012; Richman and Unoka, 2015), the results of the affective aspect of ToM

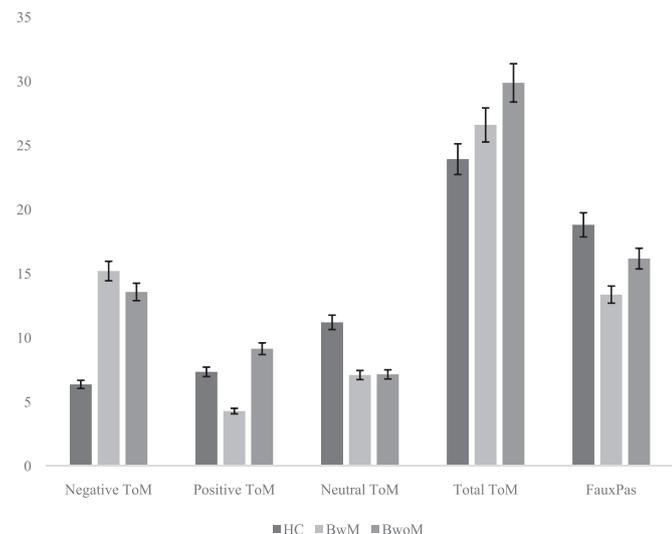


Fig. 1. Mean of accurate responses of RMET and Faux Pas test in three groups. Note. HC = healthy controls, BwM = BPD with MDD, BwoM = BPDwoMDD.

analysis—which was measured by RMET paradigm—showed that except for the neutral stimuli of RMET, the BPD sample had greater mental state discrimination as compared to HCs. This better performance was observed in both BPD groups when they were compared to HCs. Aside from the negative stimuli of RMET, the BwoM group outperformed their counterparts who were also diagnosed with MDD (BwM). While the latter finding of our study is consistent with Fertuck et al. (2009), it contrasts with Frick et al. (2012).

One of the major advantages of the present study was the measurement of depressive symptoms. Though in prior studies the severity of depressive symptoms were assessed using self-report measures, this contrasts with our study as BPD participants were compared to each other through two separate categories based on the comorbidity or non-comorbidity with MDD. The inconsistency of this study with Frick et al. (2009) can be due to the mild to moderate symptoms of depression of the clinical sample in their studies. Despite this, reviewing the literature exhibits some agreement on deficits of mind reading in patients with depression (Nejati et al., 2012; Wang et al., 2008; Wolkenstein et al., 2011). This shortage of ToM ability in depressed patients correlates strongly with their social skills dysfunction (Wang et al., 2008). Since interpersonal conflict is an important element in recurrence of depression (Inoue et al., 2006), ToM impairment seems to be a suitable predictor of depression reappearance along with the malfunction of these patients in their social interactions. In response to the question on why BwM also had a better total performance in mind reading than HCs, we suspect that it could be due to the symptomatology of the BPD patients in the study. Based on this study and prior studies (Fertuck et al., 2009; Frick et al., 2012), patients with BPD display better and greater performance in mental state discrimination than that of HC subjects, therefore, it could be said that even with the poor performance caused by relapse of major depression, the BwM group's total mind reading performance is still more enhanced as compared to HCs.

Furthermore, the higher score of BwM on the negative stimuli of RMET might be related to the involvement of depression in a better process of negative stimuli (Everaert et al., 2012, 2014; Duque and Vázquez, 2015). Attention bias towards negative stimuli and negative interpretation of ambiguous social stimuli including other people's mental states are cognitive characteristics of depression (Beavers et al., 2009). It can be said that these patients decode negative information better than other groups. According to cognitive approach, people suffering from depression are disposed to interpret ambiguous stimuli (i.e., negative), and this interpretation bias plays an essential role in the creation and persistence of the disease (Williams et al., 1998; Bradley et al., 1995). These individuals have more of a negative understanding of unclear social situations; this can be due to the bias they have in their attention along with their better memory for negative stimuli (Everaert

et al., 2014). The above-mentioned disturbance has a significant correlation with a dysfunction within social skills of these patients.

In addition to the affective aspects, the cognitive aspects were also measured by the Faux Pas Task. Contrary to the affective aspect, the results in the cognitive showed an improved performance of HCs as compared to both BPD groups. Our results support evidence from the current literature (Harari et al., 2010; Preissler et al., 2010). This refers to the fact that despite the increased sensitivity in mental state discrimination of BPD patients, they experience dysfunction in their social interactions (Frick et al., 2012).

Simultaneous measurement of both aspects of ToM provided the opportunity to assess the contribution of each aspect in the ToM performance of BPD patients. A major finding of our study is that there also exists a deficit in cognitive ToM, which is a major addition to the literature. In this regard, the worst performance in the Faux Pas Task was in the BwM group that exhibited the role of depression in intensifying the deficiency of the cognitive aspect. As a result, it seems that the efficacy of MBT in improving the BPD symptoms (Eizirik and Fonagy, 2009; Bateman and Fonagy, 2010) is mostly associated with the effectiveness of these therapies in the enhancement of the cognitive aspect of ToM.

Overall, we can conclude from this study that the dysfunction in social relationships of individuals with BPD is due to a deficit in the cognitive but not the affective aspects of ToM. We also can conclude that depressive symptoms are confounding in those with more depressive symptoms.

4.1. Limitations

The first limitation is that there was no group with just MDD. Future studies could take this into consideration in order to assess how only depressive symptoms interfere with ToM abilities. Second, in this study we did not evaluate the relationship between the relapse rates of depressive symptoms and ToM performance. Investigation of this relationship seems important to achieve more additional results. Third, BPD without MDD patients were the ones seeking treatment. It would be better if a wider range of BPD patients are examined so that a more reliable conclusion can be reached regarding their ToM ability. Fourth, in this study the possible effects of use of medication on performance of patients was not analyzed. Fifth, we used a categorical approach for diagnose of BPD whereas a dimensional model allows for varying degrees of severity that may increase the validity of a diagnosis (Brown and Barlow, 2005; American Psychiatric Association, 2013). Finally, we were limited by our small sample size.

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Conflict of Interest Statement

The authors declare that this research was conducted in the absence of any commercial or financial support that could be construed as a potential conflict of interest.

Appendix A. Number of comorbid Axis I and II disorders in the BPD groups

Groups	BPD with MDD		BPD without MDD	
	n	%	n	%
Diagnoses				
Axis I diagnosis				
Panic disorder	2	8.69	1	4.76
Simple phobia	7	30.43	4	19.04
Generalized anxiety	5	21.73	2	9.52
Post-traumatic stress disorder	9	39.13	6	28.57
Social phobia	4	17.39	4	19.04
Eating disorder	7	30.43	5	23.80
Obsessive-compulsive disorder	5	21.73	1	4.76
Axis II diagnosis				
Obsessive-compulsive	4	17.39	2	9.52
Paranoid	3	13.04	1	4.76
Narcissistic	2	8.69	3	14.28
Antisocial	4	17.39	2	9.52
Histrionic	4	17.39	3	14.28

Note. n = frequency of participants in each group, % = percentage frequency.

Appendix B

Nahid had just moved into a new apartment. Nahid went shopping and bought some new curtains for her bedroom. When she had just finished decorating the apartment, her best friend, Zahra, came over. Nahid gave her a tour of the apartment and asked, "How do you like my bedroom?" "Those curtains are horrible," Zahra said. "I hope you're going to get some new ones!"

Did anyone say something they shouldn't have said or something awkward?

If yes, ask:

Who said something they shouldn't have said or something awkward?

Control question:

In the story, what had Nahid just bought?

How long had Nahid lived in this apartment?

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