



The effects of childhood emotional maltreatment and alexithymia on depressive and manic symptoms and suicidal ideation in females with bipolar disorder: emotion dysregulation as a mediator

Vahid Khosravani^a , Michael Berk^{b,c,d,e,f} , Farangis Sharifi Bastan^g, Seyed Mehdi Samimi Ardestani^h and Anna Wrobel^{b,f}

^aBehavioral Sciences Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran; ^bIMPACT – The Institute for Mental and Physical Health and Clinical Translation, School of Medicine, Deakin University, Geelong, Australia; ^cFlorey Institute for Neuroscience and Mental Health, University of Melbourne, Melbourne, Australia; ^dDepartment of Psychiatry, Royal Melbourne Hospital, University of Melbourne, Parkville, Australia; ^eCentre for Youth Mental Health, The University of Melbourne, Parkville, Australia; ^fOrygen, Parkville, Australia; ^gPsychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran; ^hDepartments of Psychiatry, Behavioral Sciences Research Center, Imam Hossein Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran

ABSTRACT

Objectives: The relations of childhood emotional maltreatment and alexithymia to the clinical course of bipolar disorder (BD) have been widely recognised. Difficulties in regulating emotions may explain these relationships. The current study evaluated the effects of childhood emotional maltreatment and alexithymia on depressive and manic symptoms as well as suicidal ideation in female patients with BD. Emotion dysregulation was evaluated as a mediating factor.

Methods: Three hundred hospitalised female patients with a diagnosis of BD provided information regarding their history of childhood emotional maltreatment, alexithymia, difficulties in emotion regulation, depressive and manic symptoms, and suicidal ideation. A series of structural equation models (SEMs) were calculated to assess the associations between these variables.

Results: Childhood emotional abuse and difficulty in identifying feelings were indirectly associated with depressive and manic symptoms as well as suicidal ideation. This association was mediated by emotion dysregulation. This association remained significant after depressive and manic symptoms were controlled in the model.

Conclusions: This study indicates that patients with BD who experienced emotional abuse during childhood and have difficulties identifying emotions report greater emotion dysregulation. These individuals, in turn, are more likely to experience more severe depressive and manic symptoms as well as suicidal ideation.

KEY POINTS

- Childhood emotional maltreatment and emotional and clinical factors in bipolar disorder were assessed.
- Childhood emotional abuse indirectly affected clinical factors via emotion dysregulation.
- Difficulty in identifying feelings was linked to clinical factors via emotional dysregulation.
- Emotional dysregulation affected the links of childhood emotional maltreatment and difficulty in identifying feelings on suicidal ideation after controlling for clinical symptoms.
- Emotional dysregulation dimensions of impulse, strategies, and goals emerge in relation to suicidal ideation.

ARTICLE HISTORY

Received 6 November 2020
Revised 29 December 2020
Accepted 17 January 2021

KEYWORDS

Childhood emotional maltreatment; alexithymia; suicidal ideation; emotion regulation; bipolar disorder; depression

Introduction

Bipolar disorder (BD) as an affective disorder is primarily characterised by episodes of mania and depression (American Psychiatric Association 2013). BD can be highly debilitating and individuals with the disorder commonly report impairments in functioning and quality of life (Cotrena et al. 2016; Gao et al. 2019). In people with a diagnosis of BD, suicidality, especially suicidal ideation is highly prevalent, and suicidal ideation is positively correlated with the severity of a person's depressive and manic symptoms (Gonda et al. 2012; Pompili et al. 2013; Aaltonen et al. 2016; Fiedorowicz et al. 2019; Kamali et al. 2019;).

Childhood maltreatment is well known as a risk factor for BD and patients with BD who have a history of childhood maltreatment experience more severe manic and depressive symptoms, more episodes, and are more likely to report rapid cycling and suicidal risk than those without such a history (Agnew-Blais and Danese 2016). Childhood maltreatment is also associated with suicidal ideation and behaviour in several clinical samples (Pompili et al. 2014; Serafini et al. 2015; de Mattos Souza et al. 2016; Khosravani, Kamali et al. 2017; Mohammadzadeh, Azadi et al. 2019) and frequent clinical presentations of BD including suicidal ideation (Pavlova et al. 2018; Xie et al. 2018; Segura et al. 2019).

Among the different types of childhood maltreatment, emotional maltreatment (i.e., emotional abuse and neglect that share one common dimension of the childhood maltreatment in patients with BD; Innamorati et al. 2016) has been implicated by a substantive body of literature as a robust prognostic factor in the context of BD (McIntyre et al. 2008; Etain et al. 2010, 2017; Janiri et al. 2015, 2018; Palmier-Claus et al. 2016; Serafini et al. 2016; Jaworska-Andryszewska and Rybakowski 2018; Kefeli et al. 2018; Leclerc et al. 2018; Xie et al. 2018; Martins et al. 2019; Segura et al. 2019; Zhou et al. 2019; Vieira et al. 2020; Yin et al. 2020). Individuals with BD who report high levels of childhood maltreatment, especially childhood emotional maltreatment are mostly women and they are more likely to experience depression and engage in suicidal behaviours (Pompili et al. 2014). Also, women with BD, especially those with manic symptoms (Fiedorowicz et al. 2019), may have greater suicidal risk than men (Tondo et al. 2016; Kattimani et al. 2017), and experience more depressive and/or mixed episodes (Kattimani et al. 2017). Consequently, women with BD presenting with depressive or manic symptoms were included in the present study. Here it is worth highlighting that some studies have reported that depressive symptoms in BD are more strongly related to suicidal risk than mixed symptoms (Fiedorowicz et al. 2019, 2020), while others noted that BD patients with mixed states are at greater risk of suicide (Pompili et al. 2009; Lage et al. 2019; Forte et al. 2020).

In addition to emotional maltreatment, alexithymia is pertinent to the clinical expression of BD. Alexithymia refers to a person's difficulties with identifying, describing, and/or expressing their own and other people's emotions (Nemiah 1977). Sensory processing of emotional processes including alexithymia is important in BD (Serafini et al. 2017). Alexithymia, especially difficulty in identifying feelings, may be a risk factor for adverse outcomes including suicide ideation. This is independent of depression, anxiety, and other symptoms, especially in depressed patients (De Berardis et al. 2008, 2017, 2019; Albert et al. 2019; De Berardis, Vellante et al. 2020; Serafini et al. 2020; De Berardis, Fornaro et al. 2020b). Depressed individuals with high alexithymia frequently report a history of childhood maltreatment (Honkalampi et al. 2020), particularly emotional maltreatment (Güleç et al. 2013; Kefeli et al. 2018; Brown, Fite et al. 2018). Such difficulty in mood perception is associated with parallel difficulty in mood regulation (Paulsen et al. 2014; Khosravani et al. 2018). Associations between alexithymia, especially difficulty in identifying feelings, and clinical features of BD (e.g., suicidal ideation and depressive symptoms) (Loas et al. 2016; Yilmaz et al. 2016; Kefeli et al. 2018; Ospina et al. 2019; Bøen et al. 2020), major depression (De Berardis et al. 2008, 2019, 2020b; Izci et al. 2015), and other clinical conditions (Khosravani et al. 2020) have been reported. Alexithymia is commonly evaluated with the Toronto Alexithymia Scale (TAS-20; Bagby et al. 1994) which differentiates between the following components of alexithymia: difficulty in identifying feelings, difficulty in describing feelings, and externally oriented thinking.

Despite the evidence linking childhood emotional maltreatment and alexithymia to the clinical presentation of BD, there is a lack of research exploring the underlying mechanisms. Difficulties in emotion regulation which include ineffective emotion regulation as well as inappropriate emotional reactions to situations or stimuli (Gratz and Roemer 2004) may represent a promising mechanistic candidate. Not only do individuals with BD frequently report difficulties in emotion regulation (Van Rhee et al. 2015; Bayes et al. 2016; Dodd et al. 2019), there is a relationship between difficulties in emotion regulation and the severity of depressive and manic symptoms as well as suicidality in BD

(Wolkenstein et al. 2014; Van Rhee et al. 2015; Palagini, Cipollone, Masci et al. 2019, Palagini, Cipollone, Moretto et al. 2019). Importantly, there is preliminary evidence relating childhood emotional maltreatment and alexithymia to difficulties in emotion regulation in individuals with BD (Russo et al. 2015; Velotti et al. 2016; Etain et al. 2017) as well as other clinical populations (Ghorbani et al. 2017; Berzenski 2018; Khosravani, Messman-Moore et al. 2019, Khosravani, Ardestani et al. 2019b; Şenkal Ertürk et al. 2020).

Aims and hypotheses

The current study in female patients with BD aimed to evaluate the direct and indirect effects of childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings on depressive and manic symptoms as well as suicidal ideation through difficulty in emotion regulation. We hypothesised that childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings would have effects on depressive and manic symptoms and suicidal ideation through the mediating roles of difficulty in emotion regulation and its specific facets. We also hypothesised that these effects on suicidal ideation would remain significant after controlling for depressive and manic symptoms in the models.

Method

Participants

Three hundred hospitalised female patients with a primary diagnosis of BD (age range = 18–62 years; mean age = 33.08 years) in a depressive ($n = 193$, 64.3%) or manic ($n = 107$, 35.7%) state were consecutively selected between October 2018 to April 2020 to participate in the present study. Participants with primary psychotic disorders and/or physical or neurological disorders were excluded. Participants' diagnoses were confirmed using the Structured Clinical Interview for DSM-5, Research Version (SCID-5-RV; First et al. 2014) by a clinical psychologist and a psychiatrist. None of the patients had an intellectual disability based on information recorded in their psychiatric files. All participants received medications generally as polytherapy including antidepressants (citalopram, clomipramine, fluoxetine, amitriptyline), mood stabilisers (lithium, carbamazepine, sodium valproate (depakine)), benzodiazepines (alprazolam, clonazepam, olanzapine, lorazepam), and antipsychotics (e.g., haloperidol, perphenazine, fluphenazine). The data for this study was extracted from a research project approved by the Medical Ethics Committee of Shahid Beheshti University of Medical Sciences. The conduct of this research adhered to the 1989 revision of the Helsinki Declaration.

Psychological measures

The Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al. 2003) is a self-report measure that assesses five types of childhood maltreatment: emotional, physical, and sexual abuse, as well as emotional and physical neglect. This scale has 28 items (five for each type of childhood maltreatment) of which three do not have any effects on scoring. All items are scored on a five-point Likert scale from 1 (never) to 5 (always) and the total score can range from 28 to 125. The validity and reliability of the CTQ-SF have been demonstrated (Kongerslev et al. 2019). Although the CTQ-SF has 28 items, only items measuring childhood emotional maltreatment (i.e., childhood emotional abuse [5 items], childhood emotional neglect [5 items]) were considered

for the current study. Previous studies have reported that emotional abuse and emotional neglect are one common factor in the CTQ-SF in psychiatric patients including patients with BD (Innamorati et al. 2016). According to the cut-off scores of the CTQ-SF, a score equal to or higher than 10 on the emotional abuse subscale specifies participants with high emotional abuse and also that ≥ 15 on the emotional neglect subscale indicates those with high emotional neglect (Walker et al. 1999). The Persian version of the CTQ-SF validated for the Iranian community (Garrusi and Nakhaee 2009) with a Cronbach's alpha of 0.87 (Pirnia et al. 2020) was used. In the current sample, Cronbach's alpha for emotional abuse and neglect were 0.81 and 0.75, respectively.

The TAS-20 (Bagby et al. 1994) is a self-report measure that assesses three dimensions of alexithymia: difficulty in identifying feelings (7 items), difficulty in describing feelings (5 items), and externally oriented thinking (8 items). The TAS-20 has 20 items which are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) with a range from 20 to 100. The TAS-20 has appropriate psychometric properties (Ścigala et al. 2020). In the present study, the Persian version of the TAS-20 validated for an Iranian population (Besharat 2007; Khosravani, Najafi et al. 2019) was employed. Only the items evaluating difficulty in identifying feelings (7 items) were used in the current study as previous studies emphasised the role of difficulties in identifying feelings, but not the other two dimensions, in suicidal behaviour in depressed patients (De Berardis et al. 2008, 2017, 2019, 2020a, 2020b; Albert et al. 2019; Serafini et al. 2020). Cronbach's alpha of that subscale was 0.84 in an Iranian sample (Khosravani, Ardestani et al. 2017). In the current sample, difficulty in identifying feelings had a good Cronbach's alpha of 0.82.

The Difficulties in Emotion Regulation (DERS; Gratz and Roemer 2004) is a self-report measure with 36 items assessing difficulties in emotion regulation across six dimensions: limited access to emotion regulation strategies (strategies; 8 items), non-acceptance of emotional responses (non-acceptance; 6 items), difficulties engaging in goal-directed behaviours (goals; 5 items), impulse control difficulties (impulse; 6 items), lack of emotional clarity (clarity; 5 items), and lack of emotional awareness (awareness; 6 items). All items of the DERS are rated on a 5-point Likert scale ranging from 1 (rarely) to 5 (always) with a range from 36 to 180. Some items are scored inversely (items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34). Several studies confirmed the validity and reliability of the DERS (Li et al. 2018). The Persian version of the DERS used in the present study has been validated (Mazaheri 2015), with a Cronbach's alpha of 0.90 (Khosravani, Bastan et al. 2017). The DERS also had good internal consistency in the current sample with a Cronbach's alpha of 0.90.

Clinical measures

The Beck Scale for Suicide Ideation (BSSI; Beck et al. 1979) evaluates suicidal ideation during the past week on 19 items that are rated on a scale from 0 to 2. The range of the BSSI is between 0 and 38. Higher scores of the scale indicate higher suicidal risk with a total score of 6 or higher implicating individuals at high risk of suicide (Sokero et al. 2003). The BSSI has been demonstrated to have good psychometric properties in clinical samples (Pinninti et al. 2002). A validated Persian version of the scale (Esfahani et al. 2015) with good reliability in the Iranian community (Cronbach's alpha = 0.90; Azadi et al. 2020; Khosravani, Baseri et al. 2019) was used. Cronbach's alpha for the BSSI was 0.98, indicating good internal consistency in the current sample.

The Bipolar Depression Rating Scale (BDRS; Berk et al. 2007) is a clinical interview that assesses the severity of bipolar depression including depressive and mixed symptoms. The 20 item BDRS measures three factors of somatic depressive (6 items), psychological depressive (9 items), and mixed (5 items) symptoms. All items are rated on a 4-point Likert scale from 0 (never) to 3 (severe) with a range from 0 to 60. The BDRS shows good psychometric properties (Sarró et al. 2015). In the present study, the Persian version of the scale with a Cronbach's alpha of 0.81 and a three-factor structure validated for the Iranian population was used (Ebrahimi et al. 2015). The BDRS showed good internal consistency in the present sample with a Cronbach's alpha of 0.79.

The Young Mania Rating Scale (YMRS; Young et al. 1978) is a clinical interview that assesses the severity of manic symptoms. The 11 items of the YMRS are rated on a scale ranging from 0 (no symptoms/normal behaviour) to 4 (extreme mania) with a range from 0 to 44. Obtaining a score higher than 7 on the YMRS denotes the presence of manic symptoms (Young et al. 1978). The YMRS has good psychometric properties (Vilela et al. 2005). The Persian version of the scale with good reliability (Cronbach's alpha = 0.72; Mohammadi et al. 2018) was used. In the current study, Cronbach's alpha was 0.95 for the YMRS.

Statistical analyses

Statistical analyses were completed in IBM SPSS Statistics 22. The relationships between variables were evaluated with Pearson correlations. Using AMOS, a series of structural equation models (SEMs) with maximum likelihood (ML) was conducted to assess the effects of childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings on depressive and manic symptoms as well as suicidal ideation. In the first SEM, childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings were used as independent variables; difficulties in emotion regulation (total score on the DERS) as mediator; and manic and depressive symptoms and suicidal ideation as dependent variables. In the second SEM, the first model was re-evaluated, controlling for depressive and manic symptoms as covariates. In the third SEM, the individual subscales of the DERS were used as mediators. To further examine the indirect effects, bootstrapping with 5000 resamples in AMOS 21.0 was performed. Indirect effects were deemed significant if their 95% confidence interval (CI) did not include zero. The fit of the models was evaluated with Chi-square (χ^2) divided by degrees of freedom (CMIN/DF), the comparative fit index (CFI), the goodness-of-fit index (GFI), and the root mean square error of approximation (RMSEA). CMIN/DF < 3, CFI and GFI > 0.92, and RMSEA < 0.08 indicate acceptable model fit (MacCallum et al. 1996; Schermelleh-Engel et al. 2003; Kline 2015).

Results

Key demographic details included a high proportion of participants who had a history of suicide attempts ($n = 152$, 50.7%) and received psychotherapy [$n = 138$, 46%; e.g., cognitive behavioural therapy (CBT) or dialectical behaviour therapy (DBT)]. Comorbidity of psychiatric disorders was frequent ($n = 159$, 53%) as were substance use disorders ($n = 62$, 20.7%), personality disorders (especially borderline personality disorder $n = 29$, 9.7%), obsessive-compulsive disorder ($n = 25$, 8.3%), anxiety disorders ($n = 22$, 7.3%), attention deficit hyperactivity disorder ($n = 12$, 4%), post-traumatic stress disorder ($n = 8$, 2.7%), and anorexia nervosa ($n = 1$, 0.3%). Among participants, 55.3% ($n = 166$) were at high

Table 1. Demographic and clinical characteristics and variables.

Clinical and demographic characteristics	Mean \pm S.D or <i>n</i> (%)
Age, years	33.08 \pm 10.29
Education, years	12.45 \pm 2.95
Marital status	
Single	137 (45.7%)
Married	134 (44.6%)
Divorced	29 (9.7%)
Age of onset of BD	26.57 \pm 8.64
Duration of BD	6.50 \pm 5.57

Clinical and psychological variables	Mean \pm S.D or <i>n</i> (%)	Skewness	Kurtosis
Childhood emotional maltreatment			
Childhood emotional abuse	13.07 \pm 5.41	0.31	-0.66
Childhood emotional neglect	13.00 \pm 5.03	0.12	-0.67
Difficulty in identifying feelings	23.95 \pm 6.65	-0.54	-0.13
DERS total score	99.61 \pm 22.58	-0.12	-0.06
Suicidal ideation	12.38 \pm 12.67	0.69	-0.82
Depressive symptoms	30.19 \pm 8.13	-0.49	-0.46
Manic symptoms	10.06 \pm 10.07	0.92	-0.47

BD: bipolar disorder; DERS: difficulties in emotion regulation scale.

Table 2. Correlations among variables.

	1	2	3	5	6	7	8
1. Childhood emotional abuse	-						
2. Childhood emotional neglect	0.55*	-					
3. Difficulty in identifying feelings	0.22*	0.19*	-				
4. Difficulties in emotion regulation	0.30*	0.25*	0.57*	-			
5. Suicidal ideation	0.30*	0.26*	0.37*	0.52*	-		
6. Depressive symptoms	0.23*	0.17*	0.22*	0.40*	0.48*	-	
7. Manic symptoms	0.21*	0.15*	0.15*	0.32**	0.43*	0.62*	-

* $p < 0.01$.

risk of suicide (BSSI score ≥ 6). Also, 70% ($n = 210$) had high emotional abuse (a total score ≥ 10 on emotional abuse subscale) and 42.3% ($n = 127$) had high emotional neglect (a total score ≥ 15 on emotional neglect subscale). In addition, 39.7% ($n = 119$) presented with manic symptoms as indicated the YMRS cut-off scores (YMRS score > 7). The descriptive statistics for demographic and clinical variables can be found in Table 1.

Pearson correlations showed that childhood emotional abuse and childhood emotional neglect were significantly associated with difficulty in identifying feelings, suicidal ideation, and depressive and manic symptoms ($p < 0.01$). Difficulty in identifying feelings had significant associations with difficulties in emotion regulation, suicidal ideation, and depressive and manic symptoms ($p < 0.01$). Difficulties in emotion regulation were significantly associated with suicidal ideation and depressive and manic symptoms ($p < 0.01$). Suicidal ideation was significantly associated with depressive and manic symptoms ($p < 0.01$). Depressive and manic symptoms were significantly associated with each other ($p < 0.01$) (see Table 2).

The latent factor structure of childhood emotional maltreatment and the DERS was tested using a confirmatory factor analysis (CFA) approach conducted in AMOS. The two-factor structure of childhood emotional maltreatment including childhood emotional abuse and childhood emotional neglect had good model fit ($\chi^2 = 4.03$, $df = 3$, $CMIN/DF = 1.3$, $p < 0.001$, $GFI = 0.96$, $CFI = 0.97$, $RMSEA = 0.040$) with standardised factor loadings of 0.79 and 0.70, respectively. The six-factor structure of the DERS had an unacceptable fit ($\chi^2 = 103.63$, $df = 9$, $CMIN/DF = 11.5$, $p < 0.001$, $GFI = 0.88$, $CFI = 0.86$, $RMSEA = 0.18$) with factor loadings of 0.04 for awareness. When omitting the subscale assessing awareness, the model had acceptable fit ($\chi^2 = 11.07$, $df = 5$, $CMIN/DF = 2.2$, $p < 0.001$, $GFI = 0.99$, $CFI = 0.99$, $RMSEA = 0.050$) with factor

loadings of 0.43 (clarity), 0.90 (strategies), 0.79 (impulse), 0.77 (goals), and 0.64 (non-acceptance). The five-factor model was used in the SEMs.

Firstly, the direct relations of childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings with depressive and manic symptoms and suicidal ideation were confirmed. The model had acceptable fit ($\chi^2 = 85.41$, $df = 30$, $CMIN/DF = 2.9$, $p < 0.001$, $GFI = 0.90$, $CFI = 0.92$, $RMSEA = 0.068$) for depressive (childhood emotional abuse: $\beta = 0.21$, $p < 0.001$; childhood emotional neglect: $\beta = 0.15$, $p < 0.05$; difficulty in identifying feelings: $\beta = 0.20$, $p < 0.001$) and manic (childhood emotional abuse: $\beta = 0.17$, $p < 0.01$; childhood emotional neglect: $\beta = 0.14$, $p < 0.05$; difficulty in identifying feelings: $\beta = 0.15$, $p < 0.05$) symptoms as well as suicidal ideation (emotional abuse: $\beta = 0.17$, $p < 0.01$; emotional neglect: $\beta = 0.14$, $p < 0.05$; difficulty in identifying feelings: $\beta = 0.31$, $p < 0.001$).

The first SEM had acceptable fit ($\chi^2 = 102.66$, $df = 50$, $CMIN/DF = 2.1$, $p < 0.001$, $GFI = 0.95$, $CFI = 0.92$, $RMSEA = 0.063$). When difficulties in emotion regulation were included as the mediator, childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings had no direct effects on depressive and manic symptoms and suicidal ideation ($p > 0.05$). Childhood emotional abuse and difficulty in identifying feelings, but not childhood emotional neglect, were significantly associated with difficulties in emotion regulation. Difficulties in emotion regulation, in turn, were significantly related to depressive and manic symptoms and suicidal ideation ($p < 0.001$). The model explained 19%, 31%, and 41% of the variance in manic and depressive symptoms and suicidal ideation, respectively (see Figure 1). The 95% CI confirmed that childhood emotional abuse and difficulty in identifying feelings ($p < 0.001$), but not childhood emotional neglect ($p > 0.05$), indirectly affected depressive and manic symptoms and suicidal ideation via difficulties in emotion regulation (Table 3).

The second SEM also had acceptable fit ($\chi^2 = 126.86$, $df = 58$, $CMIN/DF = 2.2$, $p < 0.001$, $GFI = 0.93$, $CFI = 0.91$, $RMSEA = 0.069$). Depressive symptoms, but not manic symptoms ($p > 0.05$), were significantly associated with suicidal ideation ($p < 0.001$). Childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings had no direct effects on suicidal ideation ($p > 0.05$). Childhood emotional abuse and difficulty in identifying feelings, but not childhood emotional neglect, were significantly associated with difficulties in emotion regulation. Difficulties in emotion regulation, in turn, were significantly related to suicidal ideation ($p < 0.001$). The model explained 31% of the variance in suicidal ideation (Fig. 2). The 95% CI also indicated that after controlling for depressive and manic symptoms, childhood emotional abuse and difficulty in identifying feelings ($p < 0.001$), but not childhood emotional neglect ($p > 0.05$), indirectly affected suicidal ideation mediated by difficulties in emotion regulation (Table 3).

The third SEM also had acceptable fit ($\chi^2 = 134.59$, $df = 47$, $CMIN/DF = 2.9$, $p < 0.001$, $GFI = 0.92$, $CFI = 0.90$, $RMSEA = 0.073$). Depressive symptoms, but not manic symptoms ($p > 0.05$), were significantly associated with suicidal ideation ($p < 0.001$). Childhood emotional abuse, childhood emotional neglect, and difficulty in identifying feelings had no direct effects on suicidal ideation ($p > 0.05$). Emotional abuse and difficulty in identifying feelings, but not emotional neglect, were significantly associated with difficulties in emotion regulation on the dimensions of non-acceptance, goals, strategies, and impulse ($p < 0.001$ or 0.01 or 0.05). Difficulty in identifying feelings ($p < 0.001$) and childhood emotional neglect ($p < 0.01$), but not childhood emotional abuse

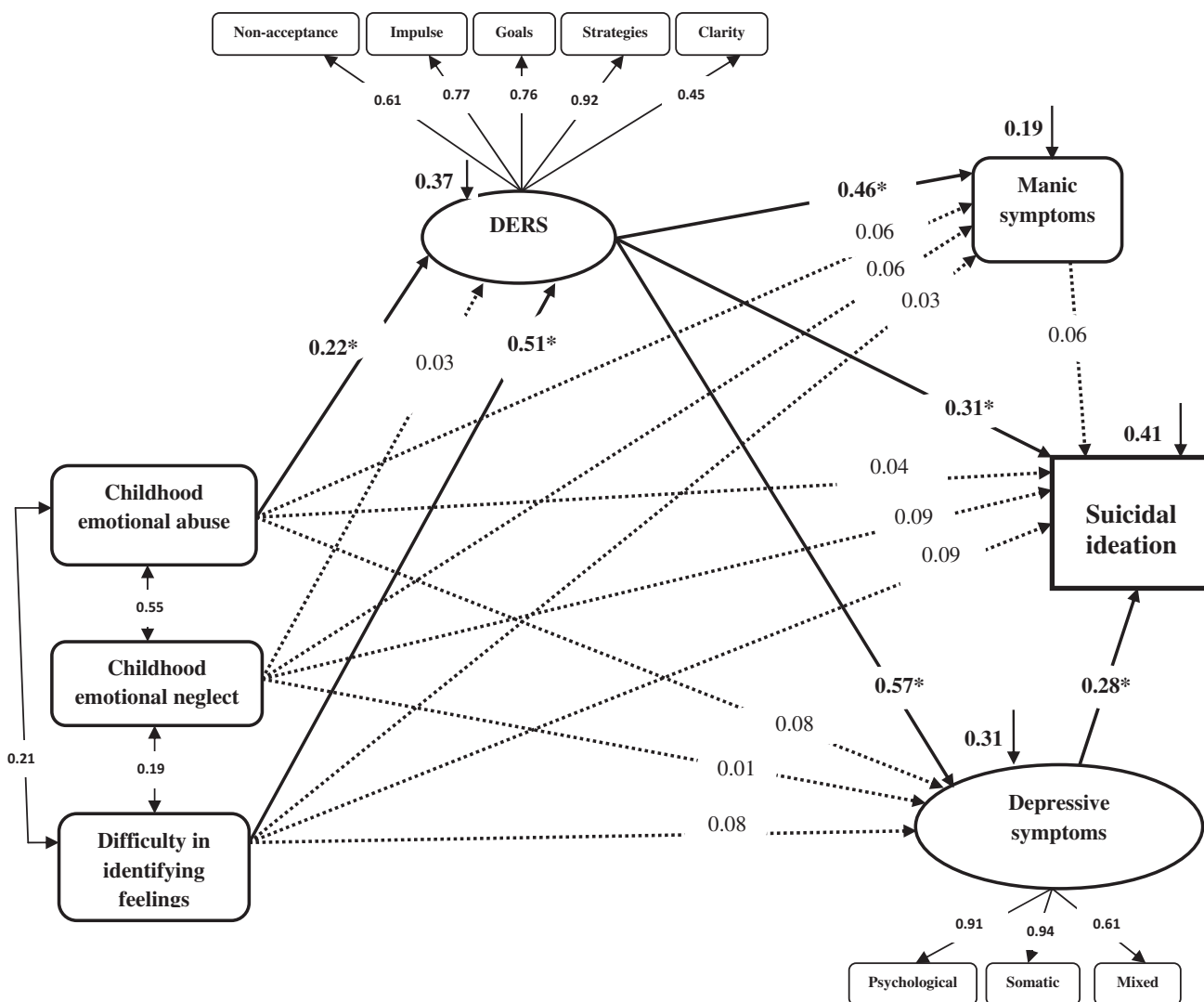


Figure 1. Standardised coefficients for the direct effects of childhood emotional abuse and neglect and difficulty in identifying feelings on depressive and manic symptoms and suicidal ideation and their indirect effects through difficulties in emotion regulation. Short arrows indicate the explained variances. Difficulties in emotion regulation were assessed on the difficulties in emotion regulation scale (DERS). DIF: difficulty in identifying feelings; Strategies: limited access to emotion regulation strategies; Non-acceptance: non-acceptance of emotional responses; Goals: difficulties engaging in goal-directed behaviours; Impulse: impulse control difficulties; Clarity: lack of emotional clarity. * $p < 0.001$.

($p > 0.05$) were significantly associated with clarity ($p < 0.001$). Only goals ($p < 0.01$), strategies, and impulse ($p < 0.001$) had significant associations with suicidal ideation. The model explained 31% of the variance in suicidal ideation (Fig. 3). The 95% CI revealed that only the DERS dimensions of goals ($p < 0.01$), strategies ($p < 0.001$), and impulse ($p < 0.01$ or 0.001) affected the direct effects of childhood emotional abuse and difficulty in identifying feelings, but not childhood emotional neglect ($p > 0.05$), on suicidal ideation (Table 3). According to these findings, the study hypothesis was confirmed.

Discussion

The results of the present study showed that childhood emotional abuse and difficulty in identifying feelings, but not childhood emotional neglect, indirectly affected manic and depressive symptoms and suicidal ideation through emotion dysregulation. These effects on suicidal ideation remained significant even after controlling for depressive and manic symptoms in the model. Also, childhood emotional abuse and difficulty identifying feelings indirectly affected suicidal ideation via the following domains of

emotion dysregulation: impulse, strategies, and goals. In addition, in the tested model, depressive symptoms had a significant pathway to suicidal ideation, but manic symptoms did not.

As such, the study highlights not only the role of childhood emotional maltreatment and difficulty in identifying feelings in the clinical course of BD but also indicates a mechanistic pathway through emotion dysregulation. These findings are in line with previous research in BD on childhood emotional maltreatment (McIntyre et al. 2008; Janiri et al. 2015, 2018; Infurna et al. 2016; Palmier-Claus et al. 2016; Serafini et al. 2016; Etain et al. 2017; Schulz et al. 2017; Jaworska-Andryszewska and Rybakowski 2018; Kefeli et al. 2018; Leclerc et al. 2018; Xie et al. 2018; Martins et al. 2019; Segura et al. 2019; Zhou et al. 2019; Vieira et al. 2020; Yin et al. 2020) and alexithymia, especially difficulty in identifying feelings (De Berardis et al. 2008, 2019, 2020b; Izci et al. 2015; Loas et al. 2016; Yilmaz et al. 2016; Kefeli et al. 2018; Ospina et al. 2019; Bøen et al. 2020). Therefore, childhood maltreatment, especially emotional abuse may be a risk factor for depression and suicidal behaviour in women with BD (Pompili et al. 2014).

People who are victims of trauma (Zlotnick et al. 2001) as well as those with BD frequently report difficulties identifying

Table 3. Standardised indirect effects using bootstrapping with 5000 resamples.

	Paths	Effect	SE boot	p Value	95% Bias corrected CI	
					Lower bound	Upper bound
Indirect effects ^b	CEA → DERS → Manic symptoms	0.08 ^a	0.03	0.001*	-0.14	-0.04
	CEA → DERS → Depressive symptoms	0.11 ^a	0.04	0.001*	0.05	0.19
	CEA → DERS → Suicidal ideation	0.10 ^a	0.03	0.001*	0.04	0.18
	CEN → DERS → Manic symptoms	0.01	0.03	0.61	-0.07	0.04
	CEN → DERS → Depressive symptoms	0.02	0.04	0.62	-0.05	0.09
	CEN → DERS → Suicidal ideation	0.02	0.03	0.60	-0.05	0.08
	DIF → DERS → Manic symptoms	0.19 ^a	0.04	0.001*	-0.28	-0.13
	DIF → DERS → Depressive symptoms	0.25 ^a	0.05	0.001*	0.17	0.36
	DIF → DERS → Suicidal ideation	0.24 ^a	0.05	0.001*	0.16	0.34
	Indirect effects ^c	CEA → DERS → Suicidal ideation	0.07 ^a	0.03	0.001*	0.03
CEN → DERS → Suicidal ideation		0.01	0.02	0.59	-0.03	0.06
DIF → DERS → Suicidal ideation		0.17 ^a	0.04	0.001*	0.09	0.27
Indirect effects ^d	CEA → Non-acceptance → Suicidal ideation	0.01	0.01	0.07	-0.001	0.05
	CEA → Goals → Suicidal ideation	0.06 ^a	0.01	0.001*	0.01	0.06
	CEA → Impulse → Suicidal ideation	0.05 ^a	0.02	0.001*	0.01	0.07
	CEA → Strategies → Suicidal ideation	0.06 ^a	0.02	0.001*	0.03	0.12
	CEA → Clarity → Suicidal ideation	0.01	0.01	0.56	-0.02	0.03
	CEN → Non-acceptance → Suicidal ideation	0.01	0.01	0.10	-0.04	0.002
	CEN → Goals → Suicidal ideation	0.003	0.01	0.66	-0.02	0.02
	CEN → Impulse → Suicidal ideation	0.01	0.01	0.55	-0.02	0.04
	CEN → Strategies → Suicidal ideation	0.01	0.02	0.43	-0.02	0.06
	CEN → Clarity → Suicidal ideation	0.03	0.02	0.06	-0.01	0.07
	DIF → Non-acceptance → Suicidal ideation	0.04	0.02	0.08	-0.01	0.05
	DIF → Goals → Suicidal ideation	0.06 ^a	0.02	0.001*	0.02	0.09
	DIF → Impulse → Suicidal ideation	0.07 ^a	0.03	0.001*	0.03	0.13
	DIF → Strategies → Suicidal ideation	0.14 ^a	0.04	0.001*	0.08	0.22
	DIF → Clarity → Suicidal ideation	0.03	0.02	0.06	-0.02	0.11

^aConfidence intervals not including zero.

^bIndirect effects of CEA, CEN, and DIF on bipolar depressive and manic symptoms and suicidal ideation via DER.

^cIndirect effects of CEA, CEN, and DIF on suicidal ideation via DER by controlling for depressive and manic symptoms.

^dIndirect effects of CEA, CEN, and DIF on suicidal ideation via DER dimensions by controlling for depressive and manic symptoms.

CEA: childhood emotional abuse; CEN: childhood emotional neglect; DIF: difficulty in identifying feelings; Strategies: limited access to emotion regulation strategies; Non-acceptance: non-acceptance of emotional responses; Goals: difficulties engaging in goal-directed behaviours; Impulse: impulse control difficulties; Clarity: lack of emotional clarity; DER: difficulty in emotion regulation. DER dimensions were assessed on the difficulties in emotion regulation scale (DERS). * $p < 0.001$.

emotions (Schenkel et al. 2007). Such emotional myopia is associated with depressive symptoms, suicidal ideation, and poor social functioning (Loas et al. 2016; Yilmaz et al. 2016; Kefeli et al. 2018; Ospina et al. 2019; Bøen et al. 2020). Additionally, research by Panayiotou et al. (2015) indicated that individuals diagnosed with a mood disorder who present with high levels of alexithymia (especially difficulty in identifying feelings) experience significant difficulties regulating their emotions. The researchers elaborated that emotion dysregulation (e.g., avoiding feelings) in turn drives the severity of depressive symptoms. Likewise, individuals with a history of childhood emotional maltreatment often experience difficulties with emotion regulation which has also been related to depressive symptoms (Christ et al. 2019; Khosravani, Messman-Moore et al. 2019).

Interestingly, the present study highlights the role of specific dimensions of emotion dysregulation (i.e., impulse, strategies, and goals) in the association between childhood emotional abuse and difficulty identifying feelings and suicidal ideation. In accordance with these findings, these dimensions of emotion dysregulation are prevalent in patients with BD (Becerra et al. 2013; Bayes et al. 2016; Dodd et al. 2019) and related to the clinical course of the disorder (Van Rheenen et al. 2015). Previous research further demonstrated that both alexithymia (including difficulty in identifying feelings; Brown, Avery et al. 2018; Ghorbani et al. 2017; Velotti et al. 2016) and childhood emotional maltreatment (Berzenski 2018; Ghorbani et al. 2019; Khosravani, Messman-Moore et al. 2019; Mohammadzadeh, Ganji et al. 2019; Gruhn and Compas 2020; Şenkal Ertürk et al. 2020) were associated with these dimensions of emotion dysregulation.

For example, childhood maltreatment generally, but emotional abuse in particular, seems to promote impulsive behaviour amongst

individuals with BD; impulsivity, in turn, has been associated with suicidality (de Mattos Souza et al. 2016; Etain et al. 2017; Reich et al. 2019; Richard-Lepouriel et al. 2019). People with a diagnosis of BD who were exposed to childhood maltreatment may also lack appropriate emotion regulation strategies; instead, trauma survivors often use ineffective or maladaptive emotion regulation strategies and report difficulty in engaging in goal-directed behaviours which puts them at risk of experiencing a more significant burden of psychopathology (Huh et al. 2017; Trent et al. 2019). As such, a significant body of research confirms that the dimensions of emotion dysregulation highlighted in the current study increase the likelihood of suicidal ideation in people with BD (Hatkevich et al. 2019; Palagini, Cipollone, Masci et al. 2019).

Although we included patients at depressive or manic phases in the present study, only depressive symptoms were associated with suicidal ideation. Manic symptoms, however, were not associated with suicidal ideation. These findings are consistent with previous studies (Fiedorowicz et al. 2019, 2020), reporting a strong relationship between depressive symptoms and suicidal ideation. Therefore, in BD patients with a history of emotional abuse who experience emotion dysregulation, depressive symptoms may play a more important role than manic symptoms for suicidal ideation. This should be considered in clinical practices (Fiedorowicz et al. 2019).

This study has several clinical implications. Patients with severe presentations of BD (e.g., frequent or severe depressive episodes and suicidal ideation) should be routinely assessed for a history of childhood maltreatment and problems in emotional processing (i.e., alexithymia and emotion dysregulation) in consort with the assessment of psychological schemas and personality structure. In theory, alexithymia could be targeted with psychotherapy,

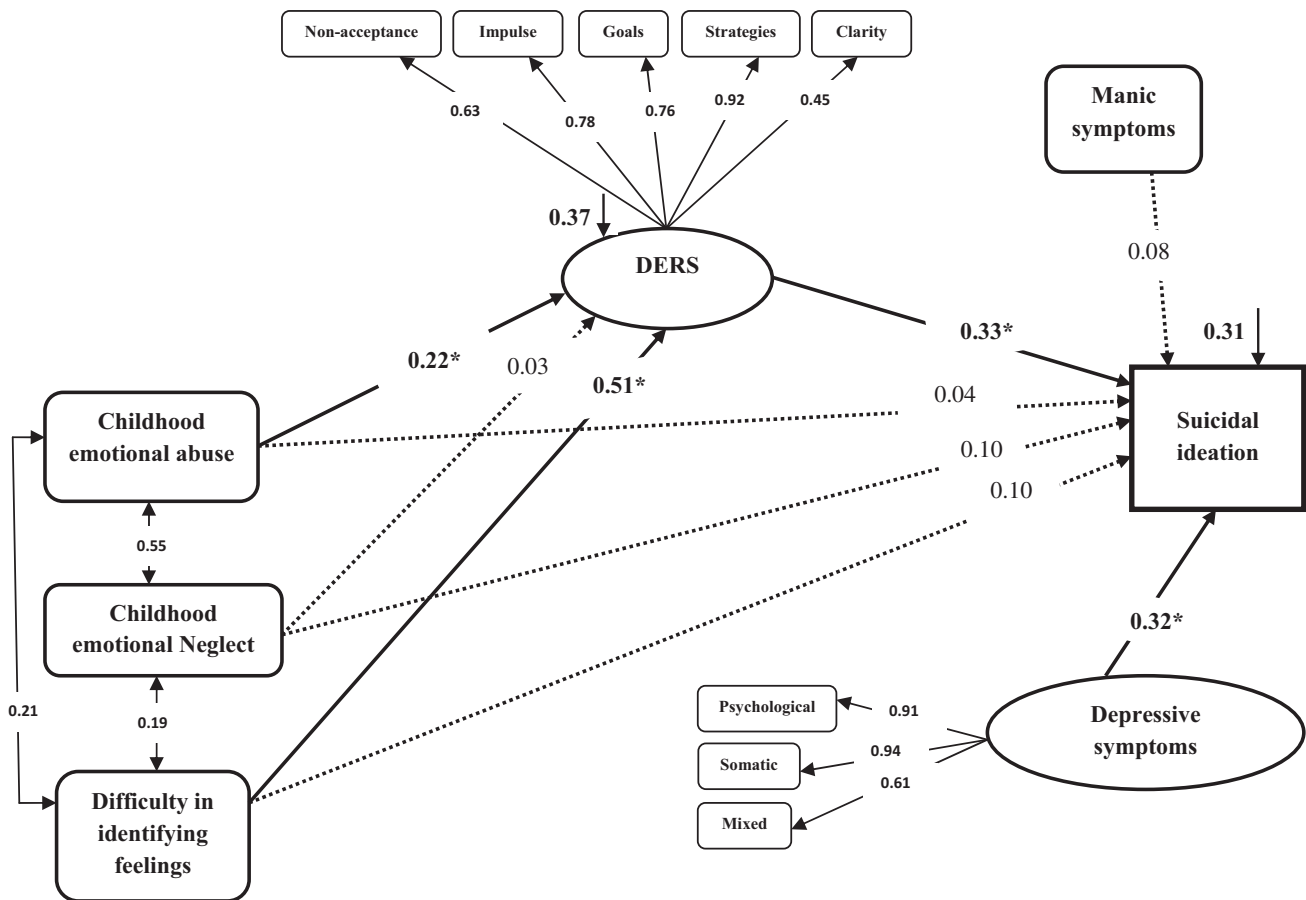


Figure 2. Standardised coefficients for the direct effects of childhood emotional abuse and neglect and difficulty in identifying feelings on suicidal ideation and their indirect effects through difficulties in emotion regulation by controlling for depressive and manic symptoms. Short arrows indicate the explained variances. Difficulties in emotion regulation were assessed on the difficulties in emotion regulation scale (DERS). Strategies: limited access to emotion regulation strategies; Non-acceptance: non-acceptance of emotional responses; Goals: difficulties engaging in goal-directed behaviours; Impulse: impulse control difficulties; Clarity: lack of emotional clarity. * $p < 0.001$.

although extant data suggests that this is a relatively stable trait and does not change much with psychotherapy (Martínez-Sánchez et al. 2003; Stingl et al. 2008). Alexithymia makes psychotherapeutic intervention difficult because of the reduced introspective capacity of the alexithymic patient. Such difficulty in emotional literacy can drive interpretation bias in the evaluation of ambivalent or complex situations and involuntary mental imagery that are risk factors for BD (Peckham et al. 2020) and diffuse and fog identity (Ironside et al. 2020). Consequently, the effects of emotional abuse and difficulty in identifying feelings on clinical presentations of BD through emotion dysregulation suggest that impaired emotional processing plays an important role in adverse outcomes in BD. Consequently, developing emotion regulation skills in BD patients with childhood trauma and emotional problems (alexithymia and emotion dysregulation) should be considered in psychotherapy programs to treat depressive and manic symptoms and suicidal ideation.

In this regard, positive emotional regulation (PER) group therapy by training affective understanding, mindfulness, reappraisal, and self-compassion may be useful in the clinical practices for BD patients (Painter et al. 2019). Also, dialectical behaviour therapy (DBT; Baigan et al. 2016) teaching mindfulness, emotion regulation, and distress tolerance skills may be useful in clinical settings for BD patients to decrease emotion reactivity, emotion dysregulation, clinical symptoms of BD (Van Dijk et al. 2013; Neacsiu et al. 2014; Eisner et al. 2017; Zargar et al. 2019), and suicidal risk

(Mehlum et al., 2014). Moreover, the use of mindfulness-based cognitive therapy (MBCT) may improve emotion regulation by training mindfulness and increasing non-judgmental awareness of thoughts and emotions (Ives-Deliperi et al. 2013). In addition, eye movement desensitisation and reprocessing (EMDR), trauma-focused CBT, and acceptance and commitment therapy (ACT) may increase people's ability to regulate their emotional reactions by educating them to accept the traumatic childhood experiences and their related emotions (Ehring et al. 2014; Moreno-Alcázar et al. 2017; Spidel et al. 2018).

Some limitations of the current study should also be noted. Childhood emotional maltreatment was assessed retrospectively potentially leading to recall bias. The other factors (i.e., alexithymia, emotion regulation, and suicidal ideation) were assessed with self-report measures which may have resulted in response bias. Furthermore, a significant percentage of patients included in the current sample reported comorbid psychiatric disorders that may affect the clinical course of BD and both alexithymia and emotional regulation, but these were not fully controlled for in the current study. Additionally, the generalisability of the current results is limited to female hospitalised patients with BD. Therefore, future studies may benefit from replicating the current findings in less homogenous samples (e.g., men, outpatients).

Another limitation relates to the assumptions that underlie the models that were tested in the current study. It was postulated that childhood emotional maltreatment and alexithymia facilitate

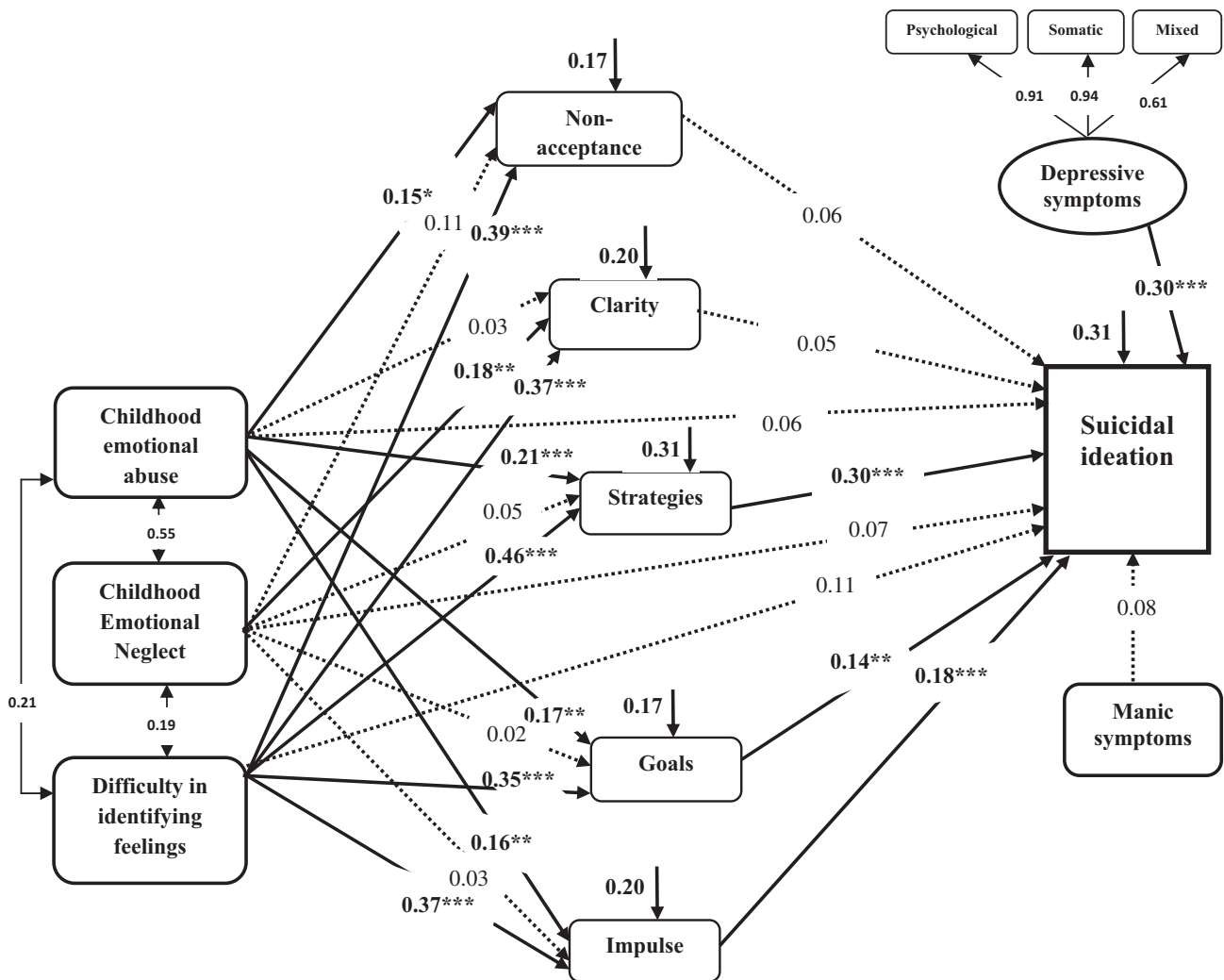


Figure 3. Standardised coefficients for the direct effects of childhood emotional abuse and neglect and difficulty in identifying feelings on suicidal ideation and their indirect effects through special aspects of difficulties in emotion regulation by controlling for depressive and manic symptoms. Short arrows indicate the explained variances. Difficulties in emotion regulation were assessed on the difficulties in emotion regulation scale (DERS). Strategies: limited access to emotion regulation strategies; Non-acceptance: non-acceptance of emotional responses; Goals: difficulties engaging in goal-directed behaviours; Impulse: impulse control difficulties; Clarity: lack of emotional clarity. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

difficulties in emotion regulation. Difficulty reading emotions can lead to difficulty regulating emotions. Difficulties in emotion regulation, in turn, were assumed to promote a more severe clinical course of BD. However, due to the cross-sectional design of the current study, the possibility of reverse causation cannot be excluded. For example, a child with difficulties regulating emotions may be exposed to emotional maltreatment if their primary caregiver fails to use more appropriate parenting strategies. As such, future research that attempts to clarify the direction of the effects is required.

Conclusion

The present study suggests that childhood emotional maltreatment and alexithymia affect the clinical course of BD. Specifically, childhood emotional abuse and difficulty in identifying feelings were related to a greater risk of depressive and manic symptoms as well as suicidal ideation. Emotion dysregulation or difficulties in emotion regulation may partially account for this association. Hence, psychological treatment strategies that target emotion regulation may prove useful in BD.

Acknowledgements

The authors thank the Behavioral Sciences Research Center, Shahid Beheshti University of Medical Sciences (SBUMS), Tehran, Iran for their support, cooperation, and assistance throughout the period of study. MB is supported by a NHMRC Senior Principal Research Fellowship [1156072].

Author contributors

All authors contributed substantively to the preparation of the manuscript. All authors contributed to and have approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research has been supported by the Behavioural Sciences Research Centre, Shahid Beheshti University of Medical Sciences

(SBUMS) and approved by the Medical Ethics Committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran.

ORCID

Vahid Khosravani  <http://orcid.org/0000-0003-4314-0591>

Michael Berk  <http://orcid.org/0000-0002-5554-6946>

References

- Aaltonen K, Näätänen P, Heikkinen M, Koivisto M, Baryshnikov I, Karpov B, Oksanen J, Melartin T, Suominen K, Joffe G, et al. 2016. Differences and similarities of risk factors for suicidal ideation and attempts among patients with depressive or bipolar disorders. *J Affect Disord.* 193:318–330.
- Agnew-Blais J, Danese A. 2016. Childhood maltreatment and unfavourable clinical outcomes in bipolar disorder: a systematic review and meta-analysis. *The Lancet Psychiatry.* 3(4):342–349.
- Albert U, De Ronchi D, Maina G, Pompili M. 2019. Suicide risk in obsessive-compulsive disorder and exploration of risk factors: a systematic review. *Curr Neuropharmacol.* 17(8):681–696.
- American Psychiatric Association 2013. Diagnostic and statistical manual of mental disorders. Washington, DC: DSM-5 American Psychiatric Publishing.
- Azadi S, Khosravani V, King S, Mohammadzadeh A, Baseri A. 2020. Effects of neuropsychological systems on psychopathology through cognitive emotion regulation strategies in individuals with suicide attempts. *Cogn Ther Res.* 44(1):229–239.
- Bagby RM, Parker JD, Taylor GJ. 1994. The twenty-item toronto alexithymia scale—I. Item selection and cross-validation of the factor structure. *J Psychosom Res.* 38(1):23–32.
- Baigan K, Khoshkonesh A, Habibi Askarabad M, Fallahzade H. 2016. Effectiveness of dialectical behavioral group therapy in alexithymia, stress, and diabetes symptoms among type 2 diabetes patients. *J Diabetes Nurs.* 4(3):8–18.
- Bayes A, Parker G, McClure G. 2016. Emotional dysregulation in those with bipolar disorder, borderline personality disorder and their comorbid expression. *J Affect Disord.* 204:103–111.
- Becerra R, Cruise KE, Murray G, Bassett D, Harms CA, Allan A, Hood S. 2013. Emotion regulation in bipolar disorder: are emotion regulation abilities less compromised in euthymic bipolar disorder than unipolar depressive or anxiety disorders? *OJPsych.* 03(04):1–7.
- Beck AT, Kovacs M, Weissman A. 1979. Assessment of suicidal intention: the scale for suicide ideation. *J Consult Clin Psych.* 47(2):343–352.
- Berk M, Malhi GS, Cahill C, Carman AC, Hadzi-Pavlovic D, Hawkins MT, Tohen M, Mitchell PB. 2007. The Bipolar Depression Rating Scale (BDRS): its development, validation and utility. *Bipolar Disord.* 9(6):571–579.
- Bernstein DP, Stein JA, Newcomb MD, Walker E, Pogge D, Ahluvalia T, Stokes J, Handelsman L, Medrano M, Desmond D, et al. 2003. Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse Negl.* 27(2):169–190.
- Berzenski SR. 2018. Distinct emotion regulation skills explain psychopathology and problems in social relationships following childhood emotional abuse and neglect. *Develop Psychopathol.* 31(2):483–496.
- Besharat MA. 2007. Reliability and factorial validity of a Farsi version of the 20-Item Toronto alexithymia scale with a sample of Iranian students. *Psychol Rep.* 101(1):209–220.
- Bøen E, Hummelen B, Boye B, Elvsåshagen T, Malt UF. 2020. Borderline patients have difficulties describing feelings; bipolar II patients describe difficult feelings. An alexithymia study. *Acta Psychiatr Scand.* 142(3):203–214.
- Brown S, Fite PJ, Stone K, Richey A, Bortolato M. 2018. Associations between emotional abuse and neglect and dimensions of alexithymia: The moderating role of sex. *Psychol Trauma.* 10(3):300–308.
- Brown TA, Avery JC, Jones MD, Anderson LK, Wierenga CE, Kaye WH. 2018. The impact of alexithymia on emotion dysregulation in anorexia nervosa and bulimia nervosa over time. *Eur Eat Disord Rev.* 26(2):150–155.
- Christ C, De Waal MM, Dekker JJ, van Kuijk I, Van Schaik DJ, Kikkert MJ, Goudriaan AE, Beekman AT, Messman-Moore TL. 2019. Linking childhood emotional abuse and depressive symptoms: The role of emotion dysregulation and interpersonal problems. *PloS One.* 14(2):e0211882.
- Cotrena C, Branco LD, Shansis FM, Fonseca RP. 2016. Executive function impairments in depression and bipolar disorder: association with functional impairment and quality of life. *J Affect Disord.* 190:744–753.
- De Berardis D, Fornaro M, Orsolini L, Valchera A, Carano A, Vellante F, Perna G, Serafini G, Gonda X, Pompili M, et al. 2017. Alexithymia and suicide risk in psychiatric disorders: a mini-review. *Fron Psychiatry.* 8:148.
- De Berardis D, Vellante F, Fornaro M, Anastasia A, Olivieri L, Rapini G, Serroni N, Orsolini L, Valchera A, Carano A, et al. 2020a. Alexithymia, suicide ideation, affective temperaments and homocysteine levels in drug naïve patients with post-traumatic stress disorder: an exploratory study in the everyday 'real world' clinical practice. *Int J Psychiatry Clin Pract.* 24(1):83–87.
- De Berardis D, Fornaro M, Valchera A, Rapini G, Di Natale S, De Lauretis I, Serroni N, Orsolini L, Tomasetti C, Bustini M, et al. 2020b. Alexithymia, resilience, somatic sensations and their relationships with suicide ideation in drug naïve patients with first-episode major depression: An exploratory study in the "real world" everyday clinical practice. *Early Interv Psychiatry.* 14(3):336–342.
- De Berardis D, Olivieri L, Rapini G, Di Natale S, Serroni N, Fornaro M, Orsolini L, Valchera A, Carano A, Vellante F, et al. 2019. Alexithymia, suicide ideation and homocysteine levels in drug naïve patients with major depression: a study in the "real world" clinical Practice. *Clin Psychopharmacol Neurosci.* 17(2): 318–322.
- De Berardis D, Serroni N, Campanella D, Carano A, Gambi F, Valchera A, Conti C, Sepede G, Scali M, Fulcheri M, et al. 2008. Alexithymia and its relationships with C-reactive protein and serum lipid levels among drug naïve adult outpatients with major depression. *Prog Neuropsychopharmacol Biol Psychiatry.* 32(8):1982–1986.
- de Mattos Souza LD, Molina ML, da Silva RA, Jansen K. 2016. History of childhood trauma as risk factors to suicide risk in major depression. *Psychiatry Res.* 246:612–616.
- Dodd A, Lockwood E, Mansell W, Palmier-Claus J. 2019. Emotion regulation strategies in bipolar disorder: A systematic and critical review. *J Affect Disord.* 246:262–284.
- Ebrahimi A, Berekatain M, Bornamanesh A, Nassiri H. 2015. Psychometric properties of the Persian version of bipolar depression rating scale (BDRS) in patients and general population. *Iran J Psychiat Clin Psychol.* 21(1):60–68.
- Ehring T, Welboren R, Morina N, Wicherts JM, Freitag J, Emmelkamp PM. 2014. Meta-analysis of psychological

- treatments for posttraumatic stress disorder in adult survivors of childhood abuse. *Clin Psychol Rev.* 34(8):645–657.
- Eisner L, Eddie D, Harley R, Jacobo M, Nierenberg AA, Deckersbach T. 2017. Dialectical behavior therapy group skills training for bipolar disorder. *Behav Ther.* 48(4):557–566.
- Esfahani M, Hashemi Y, Alavi K. 2015. Psychometric assessment of Beck Scale for Suicidal Ideation (BSSI) in general population in Tehran. *Med J Islam Repub Iran.* 29:268.
- Etain B, Lajnef M, Henry C, Aubin V, Azorin JM, Bellivier F, Bougerol T, Courtet P, Gard S, Kahn JP, et al. 2017. Childhood trauma, dimensions of psychopathology and the clinical expression of bipolar disorders: a pathway analysis. *J Psychiatr Res.* 95:37–45.
- Etain B, Mathieu F, Henry C, Raust A, Roy I, Germain A, Leboyer M, Bellivier F. 2010. Preferential association between childhood emotional abuse and bipolar disorder. *J Trauma Stress.* 23(3): 376–383.
- Fiedorowicz JG, Persons JE, Assari S, Ostacher MJ, Goes FS, Nurnberger JI, Coryell WH. 2020. Moderators of the association between depressive, manic, and mixed mood symptoms and suicidal ideation and behavior: An analysis of the National Network of Depression Centers Mood Outcomes Program. *J Affect Disord.* 281: 623–630.
- Fiedorowicz JG, Persons JE, Assari S, Ostacher MJ, Zandi P, Wang PW, Thase ME, Frye MA, Coryell W. 2019. Depressive symptoms carry an increased risk for suicidal ideation and behavior in bipolar disorder without any additional contribution of mixed symptoms. *J Affect Disord.* 246:775–782.
- First MB, Williams JBW, Karg RS, Spitzer RL. 2014. Structured clinical Interview for DSM-5 disorders (SCID-5-RV), research version. Arlington, VA: American Psychiatric Publishing.
- Forte A, Montalbani B, Mastrangelo M, Anibaldi G, De Luca GP, Imbastro B, Pompili M. 2020. Suicide risk in mixed states: clinical and preventive perspectives. *Psychiatr Annal.* 50(4): 152–157.
- Gao K, Su M, Sweet J, Calabrese JR. 2019. Correlation between depression/anxiety symptom severity and quality of life in patients with major depressive disorder or bipolar disorder. *J Affect Disord.* 244:9–15.
- Garrusi B, Nakhaee N. 2009. Validity and reliability of a Persian version of the Childhood Trauma Questionnaire. *Psychol Rep.* 104 (2):509–516.
- Ghorbani F, Khosravani V, Bastan FS, Ardakani RJ. 2017. The alexithymia, emotion regulation, emotion regulation difficulties, positive and negative affects, and suicidal risk in alcohol-dependent outpatients. *Psychiatry Res.* 252:223–230.
- Ghorbani F, Khosravani V, Mohammadzadeh A, Shadnia S. 2019. The role of emotion dysregulation in the relation of childhood trauma to heroin craving in individuals with heroin dependence. *Drug Alcohol Depend.* 195:132–139.
- Gonda X, Pompili M, Serafini G, Monteboni F, Campi S, Dome P, Duleba T, Girardi P, Rihmer Z. 2012. Suicidal behavior in bipolar disorder: epidemiology, characteristics and major risk factors. *J Affect Disord.* 143(1-3):16–26.
- Gratz KL, Roemer L. 2004. Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *J Psychopathol Behav Assess.* 26(1):41–54.
- Gruhn MA, Compas BE. 2020. Effects of maltreatment on coping and emotion regulation in childhood and adolescence: a meta-analytic review. *Child Abuse Negl.* 103:104446.
- Güleç MY, Altıntaş M, İnanç L, Bezgin ÇH, Koca EK, Güleç H. 2013. Effects of childhood trauma on somatization in major depressive disorder: The role of alexithymia. *J Affect Disord.* 146(1):137–141.
- Hatkevich C, Penner F, Sharp C. 2019. Difficulties in emotion regulation and suicide ideation and attempt in adolescent inpatients. *Psychiatry Res.* 271:230–238.
- Honkalampi K, Flink N, Lehto SM, Ruusunen A, Koivumaa-Honkanen H, Valkonen-Korhonen M, Viinamäki H. 2020. Adverse childhood experiences and alexithymia in patients with major depressive disorder. *Nord J Psychiatry.* 74(1):45–50.
- Huh HJ, Kim KH, Lee HK, Chae JH. 2017. The relationship between childhood trauma and the severity of adulthood depression and anxiety symptoms in a clinical sample: the mediating role of cognitive emotion regulation strategies. *J Affect Disord.* 213: 44–50.
- Infurna MR, Reichl C, Parzer P, Schimmenti A, Bifulco A, Kaess M. 2016. Associations between depression and specific childhood experiences of abuse and neglect: a meta-analysis. *J Affect Disord.* 190:47–55.
- Innamorati M, Erbuto D, Venturini P, Fagioli F, Ricci F, Lester D, Amore M, Girardi P, Pompili M. 2016. Factorial validity of the Childhood Trauma Questionnaire in Italian psychiatric patients. *Psychiatry Res.* 245:297–302.
- Ironside ML, Johnson SL, Carver CS. 2020. Identity in bipolar disorder: Self-worth and achievement. *J Pers.* 88(1):45–58.
- Ives-Deliperi VL, Howells F, Stein DJ, Meintjes EM, Horn N. 2013. The effects of mindfulness-based cognitive therapy in patients with bipolar disorder: a controlled functional MRI investigation. *J Affect Disord.* 150(3):1152–1157.
- Izci F, Zincir S, Bozkurt Zincir S, Bilici R, Gica S, Iris Koc MS, Goncu T, Terzi A, Semiz UB. 2015. Suicide attempt, suicidal ideation and hopelessness levels in major depressive patients with and without alexithymia. *Dusunen Adam.* 28(1):27–33.
- Janiri D, De Rossi P, Kotzalidis GD, Girardi P, Koukopoulos AE, Reginaldi D, Dotto F, Manfredi G, Jollant F, Gorwood P, et al. 2018. Psychopathological characteristics and adverse childhood events are differentially associated with suicidal ideation and suicidal acts in mood disorders. *Eur Psychiatry.* 53:31–36.
- Janiri D, Sani G, Danese E, Simonetti A, Ambrosi E, Angeletti G, Erbuto D, Caltagirone C, Girardi P, Spalletta G. 2015. Childhood traumatic experiences of patients with bipolar disorder type I and type II. *J Affect Disord.* 175:92–97.
- Jaworska-Andryszewska P, Rybakowski JK. 2018. Childhood adversity and clinical features of bipolar mood disorder. *Arch Psych Psych.* 20(2):13–19.
- Kamali M, Reilly-Harrington NA, Chang WC, McInnis M, McElroy SL, Ketter TA, Shelton RC, Deckersbach T, Tohen M, Kocsis JH, et al. 2019. Bipolar depression and suicidal ideation: Moderators and mediators of a complex relationship. *J Affect Disord.* 259: 164–172.
- Kattimani S, Subramanian K, Sarkar S, Rajkumar RP, Balasubramanian S. 2017. History of lifetime suicide attempt in bipolar I disorder: its correlates and effect on illness course. *Int J Psychiatry Clin Pract.* 21(2):118–124.
- Kefeli MC, Turow RG, Yıldırım A, Boysan M. 2018. Childhood maltreatment is associated with attachment insecurities, dissociation and alexithymia in bipolar disorder. *Psychiatry Res.* 260: 391–399.
- Khosravani V, Ardestani MS, Bastan FS, Kamali Z. 2017. The relationship between alexithymia and symptom dimensions in patients with obsessive-compulsive disorder. *J Obsess Compul Relat Disord.* 14:127–133.
- Khosravani V, Ardestani SMS, Bastan FS, Mohammadzadeh A, Amirinezhad A. 2019b. Childhood maltreatment, cognitive

- emotion regulation strategies, and alcohol craving and dependence in alcohol-dependent males: direct and indirect pathways. *Child Abuse Negl.* 98:104197.
- Khosravani V, Baseri A, Kamali Z, Mohammadzadeh A, Amirinezhad A. 2019. Direct and indirect effects of behavioral inhibition/activation systems on depression and current suicidal ideation through rumination and self-reflection. *Arch Suicide Res.* 24(4):568–588.
- Khosravani V, Bastan FS, Ghorbani F, Kamali Z. 2017. Difficulties in emotion regulation mediate negative and positive affects and craving in alcoholic patients. *Addict Behav.* 71:75–81.
- Khosravani V, Kamali Z, Ardakani RJ, Ardestani MS. 2017. The relation of childhood trauma to suicide ideation in patients suffering from obsessive-compulsive disorder with lifetime suicide attempts. *Psychiatry Res.* 255:139–145.
- Khosravani V, Messman-Moore TL, Mohammadzadeh A, Ghorbani F, Amirinezhad A. 2019. Effects of childhood emotional maltreatment on depressive symptoms through emotion dysregulation in treatment-seeking patients with heroin-dependence. *J Affect Disord.* 256:448–457.
- Khosravani V, Najafi M, Naragon-Gainey K, Mohammadzadeh A. 2019. Investigation of the factorial structure and psychometric properties of the Persian version of the Toronto Alexithymia Scale-20 in patients with psychiatric disorders. *Curr Psychol.*
- Khosravani V, Samimi Ardestani SM, Alvani A, Amirinezhad A. 2020. Alexithymia, empathy, negative affect and physical symptoms in patients with asthma. *Clin Psychol Psychother.* 27(5): 736–748.
- Khosravani V, Sharifi Bastan F, Avatefi B, Mofidi F. 2018. Alexithymia influences craving through facets of emotion regulation in alcoholic patients. *J Subs Use.* 23(1):29–35.
- Kline RB. 2015. Principles and practice of structural equation modeling. New York: Guilford publications.
- Kongerslev MT, Bach B, Rossi G, Trauelsen AM, Ladegaard N, Løkkegaard SS, Bo S. 2019. Psychometric validation of the Childhood Trauma Questionnaire-Short Form (CTQ-SF) in a Danish clinical sample. *Child Abuse Negl.* 94:104026.
- Lage RR, Santana CM, Nardi AE, Cheniaux E. 2019. Mixed states and suicidal behavior: a systematic review. *Trends Psychiatry Psychother.* 41(2):191–200.
- Leclerc E, Mansur RB, Grassi-Oliveira R, Cordeiro Q, Kapczynski F, McIntyre RS, Brietzke E. 2018. The differential association between history of childhood sexual abuse and body mass index in early and late stages of bipolar disorder. *J Affect Disord.* 227:214–218.
- Li J, Han ZR, Gao MM, Sun X, Ahemaitijiang N. 2018. Psychometric properties of the Chinese version of the Difficulties in Emotion Regulation Scale (DERS): Factor structure, reliability, and validity. *Psychol Assess.* 30(5):e1–e9.
- Loas G, Dalleau E, Lecomte H, Yon V. 2016. Relationships between anhedonia, alexithymia, impulsivity, suicidal ideation, recent suicide attempt, C-reactive protein and serum lipid levels among 122 inpatients with mood or anxious disorders. *Psychiatry Res.* 246:296–302.
- MacCallum RC, Browne MW, Sugawara HM. 1996. Power analysis and determination of sample size for covariance structure modeling. *Psychol Method.* 1 (2):130–149.
- Martínez-Sánchez F, Ato-García M, Ortiz-Soria B. 2003. Alexithymia-state or trait?. *J Psychol.* 6(1):51–59.
- Martins DS, Hasse-Sousa M, Petry-Perin C, Arrial-Cordeiro RT, Rabelo-da-Ponte FD, Lima FM, Rosa AR, Bücken J, Gama CS, Czepielewski LS. 2019. Perceived childhood adversities: impact of childhood trauma to estimated intellectual functioning of individuals with bipolar disorder. *Psychiatry Res.* 274:345–351.
- Mazaheri M. 2015. Psychometric properties of the Persian version of the difficulties in emotion regulation scale (DERS-6 & DERS-5-revised) in an Iranian clinical sample. *Iran J Psychiatry.* 10: 115–122.
- McIntyre RS, Soczynska JK, Mancini D, Lam C, Woldeyohannes HO, Moon S, Konarski JZ, Kennedy SH. 2008. The relationship between childhood abuse and suicidality in adult bipolar disorder. *Violence Vict.* 23(3):361–372.
- Mehlum L, Tørmoen AJ, Ramberg M, Haga E, Diep LM, Laberg S, Larsson BS, Stanley BH, Miller AL, Sund AM, et al. 2014. Dialectical behavior therapy for adolescents with repeated suicidal and self-harming behavior: a randomized trial. *J Am Acad Child Adolesc Psychiatry.* 53(10):1082–1091.
- Mohammadi Z, Pourshahbaz A, Poshtmashhadi M, Dolatshahi B, Barati F, Zarei M. 2018. Psychometric properties of the Young Mania Rating Scale as a mania severity measure in patients with bipolar I disorder. *Pract Clin Psychol.* 6(3):175–182.
- Mohammadzadeh A, Azadi S, King S, Khosravani V, Bastan FS. 2019. Childhood trauma and the likelihood of increased suicidal risk in schizophrenia. *Psychiatry Res.* 275:100–107.
- Mohammadzadeh A, Ganji Z, Khosravani V, Ardakan AM, Amirinezhad A. 2019. Direct and indirect associations between perception of childhood trauma and suicidal ideation through emotion dysregulation in males who use heroin. *Addict Behav.* 98:106011.
- Moreno-Alcázar A, Radua J, Landín-Romero R, Blanco L, Madre M, Reinares M, Comes M, Jiménez E, Crespo JM, Vieta E, et al. 2017. Eye movement desensitization and reprocessing therapy versus supportive therapy in affective relapse prevention in bipolar patients with a history of trauma: study protocol for a randomized controlled trial. *Trials.* 18(1):160.
- Neacsiu AD, Eberle JW, Kramer R, Wiesmann T, Linehan MM. 2014. Dialectical behavior therapy skills for transdiagnostic emotion dysregulation: a pilot randomized controlled trial. *Behav Res Ther.* 59:40–51.
- Nemiah JC. 1977. Alexithymia. Theoretical considerations. *Psychother Psychosom.* 28(1-4):199–206.
- Ospina LH, Shanahan M, Perez-Rodriguez MM, Chan CC, Clari R, Burdick KE. 2019. Alexithymia predicts poorer social and everyday functioning in schizophrenia and bipolar disorder. *Psychiatry Res.* 273:218–226.
- Painter JM, Mote J, Peckham AD, Lee EH, Campellone TR, Pearlstein JG, Morgan S, Kring AM, Johnson SL, Moskowitz JT. 2019. A positive emotion regulation intervention for bipolar I disorder: Treatment development and initial outcomes. *Gen Hosp Psychiatry.* 61:96–103.
- Palagini L, Cipollone G, Masci I, Caruso D, Paolilli F, Perugi G, Riemann D. 2019. Insomnia symptoms predict emotional dysregulation, impulsivity and suicidality in depressive bipolar II patients with mixed features. *Compr Psychiatry.* 89:46–51.
- Palagini L, Cipollone G, Moretto U, Masci I, Tripodi B, Caruso D, Perugi G. 2019. Chronobiological dis-rhythmicity is related to emotion dysregulation and suicidality in depressive bipolar II disorder with mixed features. *Psychiatry Res.* 271:272–278.
- Palmier-Claus JE, Berry K, Bucci S, Mansell W, Varese F. 2016. Relationship between childhood adversity and bipolar affective disorder: systematic review and meta-analysis. *Br J Psychiatry.* 209(6):454–459.
- Panayiotou G, Leonidou C, Constantinou E, Hart J, Rinehart KL, Sy JT, Björgvinsson T. 2015. Do alexithymic individuals avoid their feelings? Experiential avoidance mediates the association

- between alexithymia, psychosomatic, and depressive symptoms in a community and a clinical sample. *Compr Psychiatry*. 56: 206–216.
- Paulsen SL, O'Shea K, Lanius UF. 2014. Alexithymia, affective dysregulation, and the imaginal: Resetting the subcortical affective circuits. In: Lanius UF, Paulsen SL, Corrigan FM, editors. *Neurobiology and treatment of traumatic dissociation: Toward an embodied self* (pp. 341–365). New York, NY: Springer.
- Pavlova B, Perroud N, Cordera P, Uher R, Alda M, Dayer A, Aubry JM. 2018. Anxiety disorders and childhood maltreatment as predictors of outcome in bipolar disorder. *J Affect Disord*. 225: 337–341.
- Peckham AD, Modavi K, Johnson SL. 2020. Looking on the bright side and seeing it vividly: interpretation bias and involuntary mental imagery are related to risk for bipolar disorder. *Behav Cogn Psychother*. 48(2):203–215.
- Pinninti N, Steer RA, Rissmiller DJ, Nelson S, Beck AT. 2002. Use of the Beck Scale for Suicide Ideation with psychiatric inpatients diagnosed with schizophrenia, schizoaffective, or bipolar disorders. *Behav Res. Ther*. 40(9):1071–1079.
- Pirnia B, Khosravani V, Maleki F, Kalbasi R, Pirnia K, Malekanmehr P, Zahiroddin A. 2020. The role of childhood maltreatment in cortisol in the hypothalamic-pituitary-adrenal (HPA) axis in methamphetamine-dependent individuals with and without depression comorbidity and suicide attempts. *J Affect Disord*. 263:274–281.
- Pompili M, Gonda X, Serafini G, Innamorati M, Sher L, Amore M, Rihmer Z, Girardi P. 2013. Epidemiology of suicide in bipolar disorders: a systematic review of the literature. *Bipolar Disord*. 15(5):457–490.
- Pompili M, Innamorati M, Lamis DA, Erbuto D, Venturini P, Ricci F, Serafini G, Amore M, Girardi P. 2014. The associations among childhood maltreatment, “male depression” and suicide risk in psychiatric patients. *Psychiatry Res*. 220(1-2):571–578.
- Pompili M, Rihmer Z, Innamorati M, Lester D, Girardi P, Tatarelli R. 2009. Assessment and treatment of suicide risk in bipolar disorders. *Expert Rev Neurother*. 9(1):109–136.
- Reich R, Gilbert A, Clari R, Burdick KE, Szeszko PR. 2019. A preliminary investigation of impulsivity, aggression and white matter in patients with bipolar disorder and a suicide attempt history. *J Affect Disord*. 247:88–96.
- Richard-Lepouriel H, Kung AL, Hasler R, Bellivier F, Prada P, Gard S, Ardu S, Kahn JP, Dayer A, Henry C, et al. 2019. Impulsivity and its association with childhood trauma experiences across bipolar disorder, attention deficit hyperactivity disorder and borderline personality disorder. *J Affect Disord*. 244:33–41.
- Russo M, Mahon K, Shanahan M, Solon C, Ramjas E, Turpin J, Burdick KE. 2015. The association between childhood trauma and facial emotion recognition in adults with bipolar disorder. *Psychiatry Res*. 229(3):771–776.
- Sarró S, Madre M, Fernández-Corcuera P, Valentí M, Goikolea JM, Pomarol-Clotet E, Berk M, Amann BL. 2015. Transcultural adaptation and validation of the Spanish version of the Bipolar Depression Rating Scale (BDRS-S). *J Affect Disord*. 172:110–115.
- Schenkel LS, Pavuluri MN, Herbener ES, Harral EM, Sweeney JA. 2007. Facial emotion processing in acutely ill and euthymic patients with pediatric bipolar disorder. *J Am Acad Child Adolesc Psychiatry*. 46(8):1070–1079.
- Schermelleh-Engel K, Moosbrugger H, Müller H. 2003. Evaluating the fit of structural equation models: tests of significance and descriptive goodness-of-fit measures. *Method Psychol Res Online*. 8(2):23–74.
- Schulz P, Beblo T, Ribbert H, Kater L, Spannhorst S, Driessen M, Hennig-Fast K. 2017. How is childhood emotional abuse related to major depression in adulthood? The role of personality and emotion acceptance. *Child Abuse Negl*. 72:98–109.
- Ścigała DK, Zdankiewicz-Ścigała E, Bedyńska S, Kokoszka A. 2020. Psychometric properties and configural invariance of the Polish - Language Version of the 20-Item Toronto Alexithymia Scale in Non-clinical and Alcohol Addict Persons. *Front Psychol*. 11:1241.
- Segura AG, Mitjans M, Jiménez E, Fatjó-Vilas M, Ruiz V, Saiz PA, García-Portilla MP, González-Blanco L, Bobes J, Vieta E, et al. 2019. Association of childhood trauma and genetic variability of CRH-BP and FKBP5 genes with suicidal behavior in bipolar patients. *J Affect Disord*. 255:15–22.
- Şenkal Ertürk İ, Kahya Y, Gör N. 2020. Childhood emotional maltreatment and aggression: the mediator role of the early maladaptive schema domains and difficulties in emotion regulation. *J Aggress Maltreat Traum*. 29(1):92–110.
- Serafini G, De Berardis D, Valchera A, Canepa G, Geoffroy PA, Pompili M, Amore M. 2020. Alexithymia as a possible specifier of adverse outcomes: Clinical correlates in euthymic unipolar individuals. *J Affect Disord*. 263:428–436.
- Serafini G, Gonda X, Canepa G, Pompili M, Rihmer Z, Amore M, Engel-Yeger B. 2017. Extreme sensory processing patterns show a complex association with depression, and impulsivity, alexithymia, and hopelessness. *J Affect Disord*. 210:249–257.
- Serafini G, Gonda X, Pompili M, Rihmer Z, Amore M, Engel-Yeger B. 2016. The relationship between sensory processing patterns, alexithymia, traumatic childhood experiences, and quality of life among patients with unipolar and bipolar disorders. *Child Abuse Negl*. 62:39–50.
- Serafini G, Muzio C, Piccinini G, Flouri E, Ferrigno G, Pompili M, Girardi P, Amore M. 2015. Life adversities and suicidal behavior in young individuals: a systematic review. *Eur Child Adolesc Psychiatry*. 24(12):1423–1446.
- Sokero TP, Melartin TK, Rytsälä HJ, Leskelä US, Lestelä-Mielonen PS, Isometsä ET. 2003. Suicidal ideation and attempts among psychiatric patients with major depressive disorder. *J Clin Psychiatry*. 64 (9):1094–1100.
- Spidel A, Lecomte T, Kealy D, Daigneault I. 2018. Acceptance and commitment therapy for psychosis and trauma: Improvement in psychiatric symptoms, emotion regulation, and treatment compliance following a brief group intervention. *Psychol Psychother*. 91(2):248–261.
- Stingl M, Bausch S, Walter B, Kagerer S, Leichsenring F, Leweke F. 2008. Effects of inpatient psychotherapy on the stability of alexithymia characteristics. *J Psychosom Res*. 65(2):173–180.
- Tondo L, Pompili M, Forte A, Baldessarini RJ. 2016. Suicide attempts in bipolar disorders: comprehensive review of 101 reports. *Acta Psychiatr Scand*. 133(3):174–186.
- Trent ES, Viana AG, Raines EM, Woodward EC, Zvolensky MJ, Candelari AE. 2019. Exposure to parental threatening behaviors and internalizing psychopathology in a trauma-exposed inpatient adolescent sample: the role of difficulties with goal-directed behaviors. *J Nerv Ment Dis*. 207(11):969–976.
- Van Dijk S, Jeffrey J, Katz MR. 2013. A randomized, controlled, pilot study of dialectical behavior therapy skills in a psychoeducational group for individuals with bipolar disorder. *J Affect Disord*. 145(3):386–393.
- Van Rheenen TE, Murray G, Rossell SL. 2015. Emotion regulation in bipolar disorder: profile and utility in predicting trait mania and depression propensity. *Psychiatry Res*. 225(3):425–432.
- Velotti P, Garofalo C, Petrocchi C, Cavallo F, Popolo R, Dimaggio G. 2016. Alexithymia, emotion dysregulation, impulsivity and

- aggression: a multiple mediation model. *Psychiatry Res.* 237: 296–303.
- Vieira IS, Pedrotti Moreira F, Mondin TC, Cardoso TDA, Jansen K, Souza LDDM, da Silva RA. 2020. Childhood trauma and bipolar spectrum: a population-based sample of young adults. *Trends Psychiatry Psychother.* 42(2):115–121.
- Vilela JAA, Crippa JAS, Del-Ben CM, Loureiro SR. 2005. Reliability and validity of a Portuguese version of the Young Mania Rating Scale. *Braz J Med Biol Res.* 38(9):1429–1439.
- Walker EA, Unutzer J, Rutter C, Gelfand A, Saunders K, Von Korff M, Koss MP, Katon W. 1999. Costs of health care use by women HMO members with a history of childhood abuse and neglect. *Arch Gen Psychiatry.* 56 (7):609–613.
- Wolkenstein L, Zwick JC, Hautzinger M, Joormann J. 2014. Cognitive emotion regulation in euthymic bipolar disorder. *J Affect Disord.* 160:92–97.
- Xie P, Wu K, Zheng Y, Guo Y, Yang Y, He J, Ding Y, Peng H. 2018. Prevalence of childhood trauma and correlations between childhood trauma, suicidal ideation, and social support in patients with depression, bipolar disorder, and schizophrenia in southern China. *J Affect Disord.* 228:41–48.
- Yilmaz O, Ates M, Semiz m, Tutuncu R, Bez Y, Algul A, Balibey H, Basoglu C, Ebrinc S, Cetin M. 2016. Childhood traumas in patients with bipolar disorder: association with alexithymia and dissociative experiences. *Anadolu Psikiyatri Derg.* 17(3):188–195.
- Yin H, Galfalvy H, Zhang B, Tang W, Xin Q, Li E, Xue X, Li Q, Ye J, Yan N, et al. 2020. Interactions of the GABRG2 polymorphisms and childhood trauma on suicide attempt and related traits in depressed patients. *J Affect Disord.* 266:447–455.
- Young RC, Biggs JT, Ziegler VE, Meyer DA. 1978. A rating scale for mania: reliability, validity and sensitivity. *Br J Psychiatry.* 133(5): 429–435.
- Zargar F, Haghshenas N, Rajabi F, Tarrahi MJ. 2019. Effectiveness of dialectical behavioral therapy on executive function, emotional control and severity of symptoms in patients with bipolar I disorder. *Adv Biomed Res.* 8(1):59.
- Zhou J, Feng L, Hu C, Pao C, Xiao L, Wang G. 2019. Associations among depressive symptoms, childhood abuse, neuroticism, social support, and coping style in the population covering general adults, depressed patients, bipolar disorder patients, and high risk population for depression. *Front Psychol.* 10:1321.
- Zlotnick C, Mattia JI, Zimmerman M. 2001. The relationship between posttraumatic stress disorder, childhood trauma and alexithymia in an outpatient sample. *J Traum Stress.* 14(1): 177–188.

Copyright of International Journal of Psychiatry in Clinical Practice is the property of Taylor & Francis Ltd and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.