



# The mediating role of reflective functioning in the association between childhood trauma and suicide attempt

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## ABSTRACT

**Background:** Childhood trauma is intimately related with suicidal behaviour. Patients who have suffered childhood trauma develop impaired Reflective Functioning (RF), which refers to the capacity to understand ourselves and others in terms of intentional mental states. An improvement in RF has been associated with a reduction in suicidal attempts, but the mediating role of RF between childhood trauma and suicidal behaviour has not been addressed so far.

**Objective:** We aim to examine the potential mediating effect of RF among childhood trauma and suicide attempts.

**Method:** We included 748 patients who had attempted suicide at least once. They were asked to complete the Reflective Functioning Questionnaire (RFQ-8), the Columbia-Suicide Severity Rating scale (CSSRS), and the Childhood Trauma Questionnaire-Short Form (CTQ-SF). We conducted linear regressions by simple mediating model to examine the role of RF in the indirect association between childhood trauma and the number of suicide attempts.

**Results:** Our results show significant indirect effects through hypo and hypermentalizing between Emotional Abuse (EA) and Sexual Abuse (SA) in childhood and the number of suicide attempts in lifetime. These results indicate that ineffective RF significantly mediates the association between childhood trauma and suicidality.

**Conclusion:** This is the first study supporting the mediational role of RF in the relationship between EA and SA, and the number of suicide attempt in lifetime. These findings have important implications for reducing suicide rates and preventing future re-attempts. Further studies analysing this mediating role and focusing efforts on increasing RF-based interventions are required.

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## 1. Background

Suicide is one of the leading causes of preventable death worldwide, responsible for more than 800,000 deaths each year. It ranks as the second leading cause of death among youth in Spain. Suicide rates have been raising in recent years; in 2020, there were 8.2 suicides per 100,000 inhabitants (de la Torre-Luque et al., n.d.). Additionally, experts estimate that for every completed suicide, there are almost 20 suicide attempts in Spain. Since the onset of the COVID-19 pandemic, there has been an increase in psychiatry emergency visits due to suicide-related reasons (Hernández-Calle et al., 2022).

Childhood trauma has been extensively related to suicidality in numerous recent studies (Angelakis et al., 2019; Berardelli et al., 2022; Fjeldsted et al., 2020; Hadland et al., 2015), showing odds as high as 2.5-fold greater for suicide ideation, and a 4-fold increase for suicide planning (Angelakis et al., 2020). Recent studies have found that the risk of suicide attempt in both adults and young individuals is 3-fold higher when they have experienced emotional neglect (EN), over 4-fold higher in cases of physical abuse (PA), and nearly 5-fold higher in instances of emotional abuse (EA) (Angelakis et al., 2019, 2020). Furthermore, recent meta-analysis have shown that women have a higher probability of attempting suicide if they have suffered childhood maltreatment compared to men (Liu et al., 2017), even though men generally have a higher risk of suicide death (Miranda-Mendizabal et al., 2019). These findings highlight the need to investigate the factors linking childhood trauma and suicide attempt, and to identify potential interventions aimed at preventing the risk of suicide and re-attempts.

Childhood maltreatment may affect to a normal development of interpersonal relations producing deficits in social cognition in adult life (Simon et al., 2019). Several studies have found associations between childhood trauma and the risk of developing insecure attachment and altered perception of social reject (Danner Touati et al., 2022; Ihme et al., 2022, 2023). Furthermore, childhood trauma impact on social cognition in adult life is extended to mentalizing capacity (Kristiansen et al., 2020). Mentalizing, an its operational measure, Reflective Functioning (RF), refers to the capacity to understand both our self and others in terms of intentional mental states (Fonagy and Target, 1997). This involves being aware of mental states in oneself and others, particularly when explaining behaviour intentions. Fonagy et al. have defined two subtypes of RF impairment: hypomentalizing, characterized by extreme difficulty in developing complex models of the mind for oneself and others, and hypermentalizing, the tendency to construct overly complex models that do not align with observable evidence (Fonagy and Allison, 2015). RF impairments have been demonstrated to play a significant role in a wide range of disorders and behavioural issues, including anxiety disorders (Baez et al., 2023), eating disorders (Cortés-García et al., 2021; Kuipers et al., 2016), psychotic disorders (Dickhoff et al., 2021), and personality disorder such as borderline (Valdivieso Jiménez, 2020). Moreover, recent meta-analysis have identified the ineffective mentalizing as a risk factor for suicidality (Nestor and Sutherland, 2022). Some factors have been considered significant in mentalizing assessment due to its association with externalization of problems (Bizzi et al., 2020). Typically, young individuals with mentalizing deficits have been associated with a high risk of suicide behaviour (Hatkevich et al., 2019).

RF has had a substantial impact not only in the realm of developmental theory but also in clinical practice. Interventions aimed at enhancing RF, known as mentalization-based treatment, have demonstrated their effectiveness in the therapeutic management of borderline personality disorder (De Oliveira et al., 2017; Griffiths et al., 2019), and in reducing suicidal behaviour (Duñó et al., 2009). Therefore, there is a need to investigate the role of mentalizing impairment in suicide attempts to inform prevention strategies.

While several studies have explored the mediating role of RF in the association between suicidal risk and psychological factors, the findings in this area remain relatively sparse. Erbuto et al. found that mentalizing

mediated the relation between prevalent temperament and suicide risk (Erbuto et al., 2018). Also, other studies have reported that mentalizing mediated the relation between childhood trauma and negative symptoms in psychosis (Weijers et al., 2018). Furthermore, a recent study described the role of ineffective mentalizing as a mediator in the association between childhood trauma and suicide ideation (Stagaki et al., 2022), but the impact on suicide attempt has not been addressed so far.

In this study, we aim to examine the role of RF as a mediating factor between childhood trauma and the lifetime number of suicide attempts.

## 2. Methods

### 2.1. Participants

We enrolled a total of 748 individuals (age  $\geq 18$ ), all of whom had recently attempted suicide. Participants were recruited as part of a national multisite, coordinated, cohort study: SURVIVE Project PI19/00941. This study was conducted across seven centres in Spain, and participants were recruited from emergency departments. Inclusion criteria were as follows: a) age 18 years-old or older, and b) attempted suicide with a recognized dead intention, while exclusion criteria were: a) not being mental or emotionally able to carry out the initial interview and b) not report a clear suicidal intention. Participants were informed about voluntary and total anonymous participation, and the option to discontinue their participation in the study at any moment of their preference.

### 2.2. Procedure

Assessments were conducted within 10 days following the medical discharge after the suicide attempt. Data collection was performed between 17<sup>th</sup> December 2020 and 8<sup>th</sup> September 2022. Data was collected by researchers of every site and it conforms the baseline measure for a one-year follow-up longitudinal model, as described in published protocol (Pérez et al., 2020). This is a secondary analysis of a subsample from the baseline assessment.

Our study has received approval from the coordinating centre ethics committee (Parc Salut del Mar Committee for drug research: 2019/8629/I), and was also ratified by the ethic committees of all recruitment centres. All participants provided signed informed consent.

### 2.3. Measurement instruments

Participants were asked for their sex, age, educational level, religion, and we assessed suicidality. Then they were asked to complete a RF and Childhood trauma self-report assessment as follow detailed.

#### 2.3.1. Reflective functioning

We measured mentalizing with the Short Form of the Reflective Functioning Questionnaire (RFQ-8) (Fonagy et al., 2016), a self-report questionnaire consisting of 8 items on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). The English RFQ-8 version was translated into Spanish following a translation procedure with a focus on achieving semantic equivalence (Streiner et al., 2015). Spanish validity data of RFQ-8 has recently been proven among general population ( $\alpha = 0.76$ ) and individuals with personality disorders ( $\alpha = 0.78$ ) (Ruiz-Parra et al., 2023). The RFQ-8 assesses the ability to understand self and others mental states. This instrument has two subscales: uncertainty (hypomentalizing) and certainty (hypermentalizing) subscales. Uncertainty reflects an extreme lack of understanding about mental states, so higher scores on this subscale indicate worse mentalizing capacity. Conversely, lower scores on the certainty subscale indicate a poorer capacity for mentalizing, as it reflects an excessive level of certainty about mental states (Spitzer et al., 2021).

### 2.3.2. Suicide attempt

Suicide ideation in last month and lifetime history of suicidal behaviour were assessed using the Columbia-Suicide Severity Rating Scale (CSSRS) (Posner et al., 2011). Validity of CSSRS has recently been proven in cases of suicidality among Spanish speakers (Flores-Kanter et al., 2023). This instrument provided two main dimensions: (a) suicidal ideation and (b) suicidal behaviour. First dimension explores suicidal thoughts in from minor to greater severity, subdivided into passive suicidal ideation, with no specific plan or intent to act, and active suicidal ideation, with a plan and intent to act. The second dimension, examines suicide attempt, and aborted and interrupted suicide attempts. Both dimensions examine the presence (i.e., whether or not) and frequency (ranging from less than once a week to many times per day) of different suicide severity indicators.

### 2.3.3. Childhood trauma

Childhood trauma was measured with the Childhood Questionnaire-Short Form (CTQ-SF) (16). This questionnaire consists of 28 self-reported items on a five-point Likert scale from 1 = never to 5 = very often. This instrument evaluates the childhood and adolescence trauma (up to 16 years-old), reporting 5 different subscales or trauma constructs: Physical Abuse (PA), Emotional Abuse (EA), Sexual Abuse (SA), Physical Neglect (PN), and Emotional Neglect (EN). Previous studies conducted in Spain have established the reliability and validity of the CTQ-SF, showed higher Cronbach's  $\alpha$  coefficient in all the subscales except PN (Hernandez et al., 2013).

### 2.4. Statistical analysis

Student's *t* and Chi-square test were used to compare demographic characteristics between participants with and without previous history of attempted suicide for continuous and categorical variables, respectively. In order to control the potential confounding variables effect, we dichotomized the childhood trauma types to calculate the differences between groups. We dichotomized every trauma type based on the cut-off scores (13 for EA, 9 for PA, 8 for SA, 15 for EN, and 10 for PN) from guidelines for classification of CTQ (*Childhood Trauma Questionnaire*, n. d.). We created a variable with the sum of every childhood trauma type, and we conducted chi square analyses to compare the previous suicide attempt and first attempt groups. We logarithmized the variable number of suicide attempts to normalize its distribution, removing 9 cases that exceeded 3-standart deviation over the mean, in order to eliminate outliers. A series of logistic regression models was built to assess the association of each variable and childhood trauma types with the number of suicide attempts. A Poisson regression model was conducted, initially comprising univariate model for each predictor, followed by a multivariable model adjusted by significant variables. We used as predictors demographics, childhood trauma types (as continuous variables), and the RF direct scores. This approach allowed us to assess the independent effect of each categorical variable and covariate on the number of suicide attempts.

According to Baron and Kenny model (Baron and Kenny, 1986), a simple mediation analysis needs to accomplish the following criteria: First, the independent variable (childhood trauma) should be significantly associated with the dependent variable (number of attempted suicide). Second, the independent variable should be significantly associated with the mediating variable (hyper/hypo mentalizing). Third, the mediating variable should be significantly associated with the dependent variable when the independent variable is included in the same model. Fourth, the independent variable must be known to cause the mediation variable, which in turn causes the dependent variable. We tested our hypotheses using model number 4, with 95% of Confidence Interval (CI) and using bootstrapping techniques with 10,000 samples in order to confirm a hierarchical multiple regression results by paths, as visualized in Fig. 1. We used as independent variable the trauma constructs significantly associated with our principal outcome (suicide

attempts) in regressive analyses. We consider a partial mediation when the direct effects ( $c'$ ) are significant and the indirect effects ( $ab$ ) as well. We consider a total mediation when the indirect effects ( $ab$ ) are significant but the direct effects ( $c'$ ) are not. Total effect of independent to dependent variable is represented by  $c$  ( $c = ab + c'$ ). Mediation analyses were also controlled by significant demographic variables (covariates) in regression analyses, and confounders such as sex, age and education years as well. Moreover, the presence of interaction between exposure, mediator and outcome were registered. We used PROCESS macro v4.1. (Hayes, 2017) package in SPSS to conduct the mediation analysis. All tests were 2-sided, and  $p$  values  $< 0.05$  were considered significant.

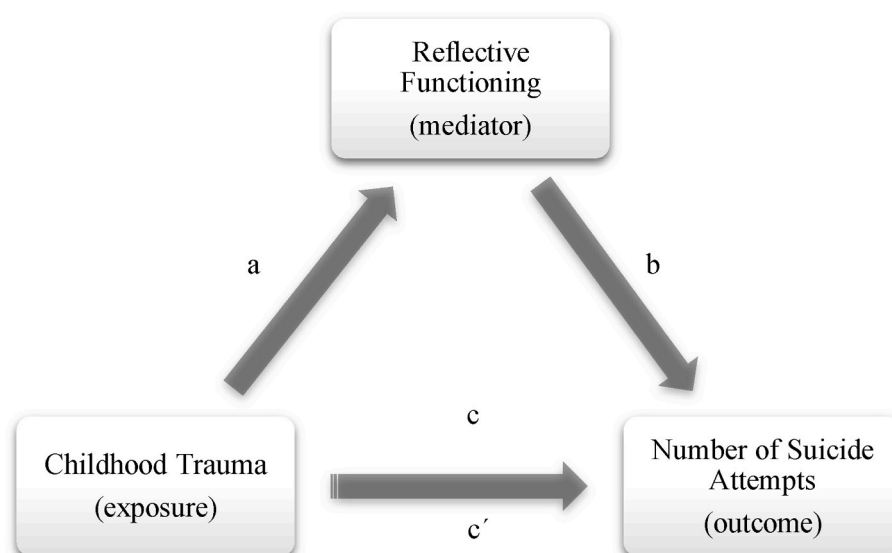
### 3. Results

Demographic differences between patients with and without previous attempted suicide are shown in Table 1. Results show a significantly higher proportion of childhood trauma in the group of reattempts than in the first suicide attempt group. Patients with previous history of attempt had significantly higher means in EA ( $p < 0.001$ ), PA ( $p < 0.001$ ), SA ( $p < 0.001$ ), EN ( $p = 0.001$ ), and PN ( $p = 0.015$ ) compared to patients without a previous history of SA. Also, the reattempt group show lower RF means, with significant lower proportions of hypermentalizing ( $p = 0.002$ ) and higher of hypomentalizing ( $p < 0.001$ ).

Poisson univariate regression analyses showed a linear trend in the relationship between a higher number of suicide attempts in lifetime and lower educational levels, as well as history of EA, PA, SA, EN ( $p < 0.001$ ), PN ( $p = 0.005$ ) in childhood (see Table 2). Results also indicated a tendency to hypomentalizing ( $p < 0.001$ ), and an inverse relationship with the tendency towards hypermentalizing ( $p < 0.001$ ). To improve the model fit, a multivariate analysis was conducted, adjusting for education years, all the childhood trauma types, and hyper and hypomentalizing. Results still showed linear trends in the association between the number of suicide attempts and a history of EA ( $p = 0.007$ ), and SA ( $p < 0.001$ ) in childhood.

Mediation analyses showed significant indirect effects through hypermentalizing between EA ( $a = -0.2657$ ,  $p < 0.001$ ;  $b = -0.1080$ ,  $p < 0.005$ ;  $ab = 0.0287$ , CI: 0.0086–0.0540;  $c' = 0.3074$ ,  $p < 0.001$ ;  $c = 0.3361$ ,  $p < 0.001$ ) and also SA ( $a = -0.1431$ ,  $p < 0.05$ ;  $b = -0.1252$ ,  $p = 0.001$ ;  $ab = 0.0179$ , CI: 0.0034–0.0369;  $c' = 0.3361$ ,  $p < 0.001$ ;  $c = 0.3540$ ,  $p < 0.001$ ) and the number of suicide attempts in lifetime. In the same line, data also showed significant indirect effects through hypomentalizing between EA ( $a = 0.4516$ ,  $p < 0.001$ ;  $b = 0.1163$ ,  $p = 0.001$ ;  $ab = 0.0525$ , CI: 0.02505–0.0901;  $c' = 0.2835$ ,  $p < 0.001$ ;  $c = 0.3361$ ,  $p < 0.001$ ) and also SA ( $a = 0.2757$ ,  $p < 0.001$ ;  $b = 0.1348$ ,  $p < 0.001$ ;  $ab = 0.0372$ , CI: 0.0150–0.0648;  $c' = 0.3168$ ,  $p < 0.001$ ;  $c = 0.3540$ ,  $p < 0.001$ ) and the number suicide attempts in lifetime. Results indicated partial mediation since the indirect effects were significant, and the direct effect in all the cases were also significant ( $p < 0.001$ ), suggesting the involvement of both effects. After an adjustment by educational level, the indirect effects through hypomentalizing remained significant between EA ( $a = 0.4449$ ,  $p < 0.001$ ;  $b = 0.1113$ ,  $p = 0.002$ ;  $ab = 0.0495$ , CI: 0.0178–0.0863;  $c' = 0.2772$ ,  $p < 0.001$ ;  $c = 0.3267$ ,  $p < 0.001$ ) and also SA ( $a = 0.2637$ ,  $p < 0.001$ ;  $b = 0.1295$ ,  $p < 0.001$ ;  $ab = 0.0342$ , CI: 0.0133–0.0609;  $c' = 0.3155$ ,  $p < 0.001$ ;  $c = 0.3497$ ,  $p < 0.001$ ) on the number suicide attempts in lifetime. In both cases, the direct effects were not significant indicating total mediation (see Table 3).

Fig. 2 shows percentage of participants for every childhood trauma type. Mean comparison for suicide attempt groups is significantly higher in the previous suicide attempt group compared to the first attempt group ( $p < 0.001$ ). In the same way, Fig. 3 shows a progressive decreasing tendency in the percentage of participants with no presence of childhood trauma in the number of previous suicide attempts, and an increasing tendency in case of participants with all types of childhood trauma. As we expected, prevalence of childhood trauma is higher among participants who have a history of prior suicide attempts.



**Fig. 1.** Simple mediation model analysis testing the mediating role of reflective functioning in the association between the childhood maltreatment and the number of suicide attempts in lifetime. Path *a* represents the association between childhood trauma and RF; path *b* the association between RF and number of suicide attempts; path *c'* represents the direct effect of childhood trauma on the number of suicide attempts, and path *c* represents the indirect effect of childhood trauma on the number of suicide attempts through RF.

**Table 1**

Characteristics of socio-demographic, childhood trauma, and reflective functioning in previous and first suicide attempt groups (N = 748).

	Without previous suicide attempt (N = 279)	With previous suicide attempt (N = 469)	p value
<b>Age, mean (SD)</b>	40.94 (17.14)	39.78 (14.82)	.333
<b>Female gender, N (%)</b>	197 (70.6%)	349 (74.4%)	.269
<b>Education years, mean (SD)</b>	12.32 (3.68)	11.79 (3.83)	.055
<b>Religious, N (%)</b>	144 (52.1%)	237 (50.7%)	.761
<b>Moderate to severe childhood trauma</b>			
Emotional abuse, N (%)	101 (36.2%)	260 (55.4%)	<b>&lt;.001</b>
Physical abuse, N (%)	69 (24.7%)	189 (40.2%)	<b>&lt;.001</b>
Sexual abuse, N (%)	70 (25.0%)	196 (41.7%)	<b>&lt;.001</b>
Emotional negligence, N (%)	89 (31.9%)	210 (44.7%)	<b>.001</b>
Physical negligence, N (%)	65 (23.3%)	148 (31.5%)	<b>.015</b>
<b>Reflective functioning</b>			
Hypermentalizing, mean (SD)	0.81 (0.77)	0.63 (0.71)	<b>.002</b>
Hypomentalizing, mean (SD)	1.24 (0.80)	1.47 (0.79)	<b>&lt;.001</b>

Bold font indicates significant level ( $p < 0.05$ ), Standard deviation (SD), Proportion in percentages (%) from each group total. Missing data for: Education years = 1, Religious = 5.

#### 4. Discussion

Our study is the first to examine the mediating role of RF in the association between childhood trauma and suicide attempts. Our findings support a model in which ineffective mentalizing, either for lack of understanding or excessive certain of self and others mental states, mediates the association between childhood abuse (EA or SA) and an increased risk of lifetime suicide attempts. These results are partly consistent with previous findings on mediation models that have also reported a mediating role of hypermentalizing in the relationship between childhood trauma and suicide attempt (Hatkevich et al., 2019).

**Table 2**

Poisson regression model to examine the association between the number of suicide attempts in lifetime with demographic and independent variables for the entire sample (N = 748).

	Number of suicide attempts			
	Univariable analysis		Multivariable analysis	
	B	p value	B	p value
<b>Age</b>	0.996	.078		
<b>Gender</b>				
Male	1.0			
Female	−0.020	.752		
<b>Education years</b>	<b>0.974</b>	<b>.001</b>	0.617	.189
<b>Religion</b>				
No	1.0			
Yes	−0.009	.798		
<b>Childhood trauma</b>				
Emotional abuse	<b>0.212</b>	<b>&lt;.001</b>	<b>0.90</b>	<b>.007</b>
Physical abuse	<b>0.163</b>	<b>&lt;.001</b>	0.28	.378
Sexual abuse	<b>0.214</b>	<b>&lt;.001</b>	<b>0.98</b>	<b>&lt;.001</b>
Emotional negligence	<b>0.133</b>	<b>&lt;.001</b>	0.10	.776
Physical negligence	<b>0.102</b>	<b>.005</b>	−0.072	.105
<b>Reflective function</b>				
Hypermentalizing	<b>−0.136</b>	<b>&lt;.001</b>	−0.052	.267
Hypomentalizing	<b>0.168</b>	<b>&lt;.001</b>	0.069	.156

B (Effect Size), Median age = 41 years-old. Multivariable analyses adjusted by education years, childhood trauma types, and hyper and hypomentalizing. Bold font indicates significant level.

This may suggest that childhood trauma may lead hypermentalizing profiles over-interpret information from others, assuming malevolent intentions, acerbating the sense of loneliness and emotion dysregulation, increasing the risk of suicidal behaviour.

Our results are also consistent with recent studies that described evidence of both hypermentalizing and hypomentalizing, as mediating mechanisms between childhood trauma and the risk of suicidality (Badoud et al., 2015; Li et al., 2020; Stagaki et al., 2022). Stagaki et al. found a direct association between child maltreatment and suicidal ideation and self-injury, partially mediated by attachment styles and mentalizing (Stagaki et al., 2022). Our findings contribute to the evidence reported in this study, by examining a more homogeneous sample composed only by patients who attempted suicide, and using validated



**Table 3**

Mediation model results among emotional and sexual abuse in childhood, hypo and hypermentalizing, and the number of suicide attempts; also adjusted by the educational level in multivariable analysis.

	Number of suicide attempts			
	Univariable analysis		Multivariable analysis	
	B (SE)	95% CI	B (SE)	95% CI
Hypermentalizing and EA	0.0287 (0.0117)	<b>.0084–.0545</b>	0.005 (0.0011)	–.0017–.0027
Hypomentalingizing and EA	0.0525 (0.0178)	<b>.0200–.0895</b>	0.0495 (0.0174)	<b>.0178–.0863</b>
Hypermentalizing and SA	0.0179 (0.0088)	<b>.0033–.0372</b>	0.0003 (0.0006)	–.009–.0016
Hypomentalingizing and SA	0.0372 (0.0128)	<b>.0150–.0648</b>	0.0342 (0.0122)	<b>.0133–.0609</b>

B (Effect Size), SE (Standard deviation), Confidence Interval (CI), Emotional Abuse (EA), Sexual Abuse (SA). Multivariable analyses adjusted by education years. Bold font indicates significant level.

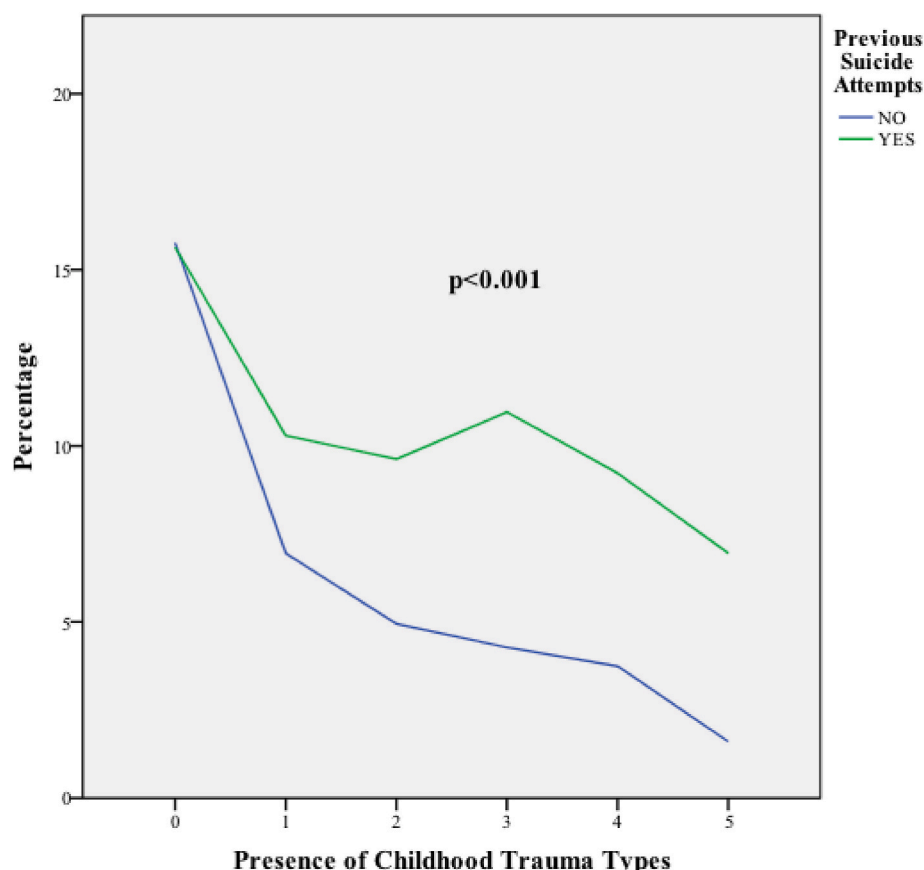
instruments such as the CSRSS to measured suicidal behaviour. As highlighted by leading authors who have proposed various models of RF (Nestor and Sutherland, 2022), childhood trauma can influence mentalizing, disrupting affect regulation and the capacity to build social networks or an effective social learning. In the context of a temporary loss of mental states abilities, especially in interpersonal situations, maladaptive stress management strategies such as self-harm (Martin et al., 2017), suicidal ideation (Berardelli et al., 2022), or suicide attempt (Senna et al., 2022) may arise.

Moreover, our findings align with several recent studies, highlighting that EA and SA may be the most influential trauma subtypes in predicting suicide attempt (Angelakis et al., 2020; Diago et al., 2022; Liu et al., 2017). This may suggest that individuals who suffered abuse in

childhood are particularly vulnerable to develop poor social skills, such as a low self-esteem due to a perception of external control (Maguire et al., 2015), increasing the risk of externalizing aggressive behaviour such as self-harm or suicide attempt.

In recent years, research has increasingly focused on the impact of COVID-19 pandemic on suicidality, identifying social distancing as a suicide attempt risk factor (Pathirathna et al., 2022). Therefore, confinement and social distancing conditions may act as contextual factors that intensify stress and hinder genuine RF capacity, typically preserved under low-stress circumstances (Lassri and Desatnik, 2020), amplifying the adverse outcomes of emotion dysregulation on psychological symptoms severity (Bizzi et al., 2023; Charpentier Mora et al., 2022). It is worth considering the hypothesis that the elevated stress levels generated by the pandemic may have contributed to a decline in mental capacity among vulnerable individuals, such as those with a history of childhood trauma.

The current study has several limitations to consider. First, this is a retrospective study, and our primary variable, the number of suicide attempts, was assessed retrospectively. To address this limitation, we recommend conducting follow-up assessments, as our data relies on a single baseline measure. The SURVIVE Study employs a longitudinal design, providing ongoing evaluations for each participant from baseline up to 1-year. This approach is essential to assess the RF evolution and its relation with suicidal behaviour over time, a crucial factor of study pointed by several authors (De Meulemeester et al., 2018; Tmej et al., 2018). Second, our sample consists solely of patients who have attempted suicide; we did not include controls participants. The inclusion of controls would enable a more meaningful comparison of results in this context. Third, our analyses did not account for potential confounders such as substance use, medication, and participants' socio-economic income. The inclusion of these factors could enhance the



**Fig. 2.** Percentage of childhood trauma types from the total sample, divided by previous suicide attempt and first suicide attempt in lifetime ( $p < 0.001$ ).

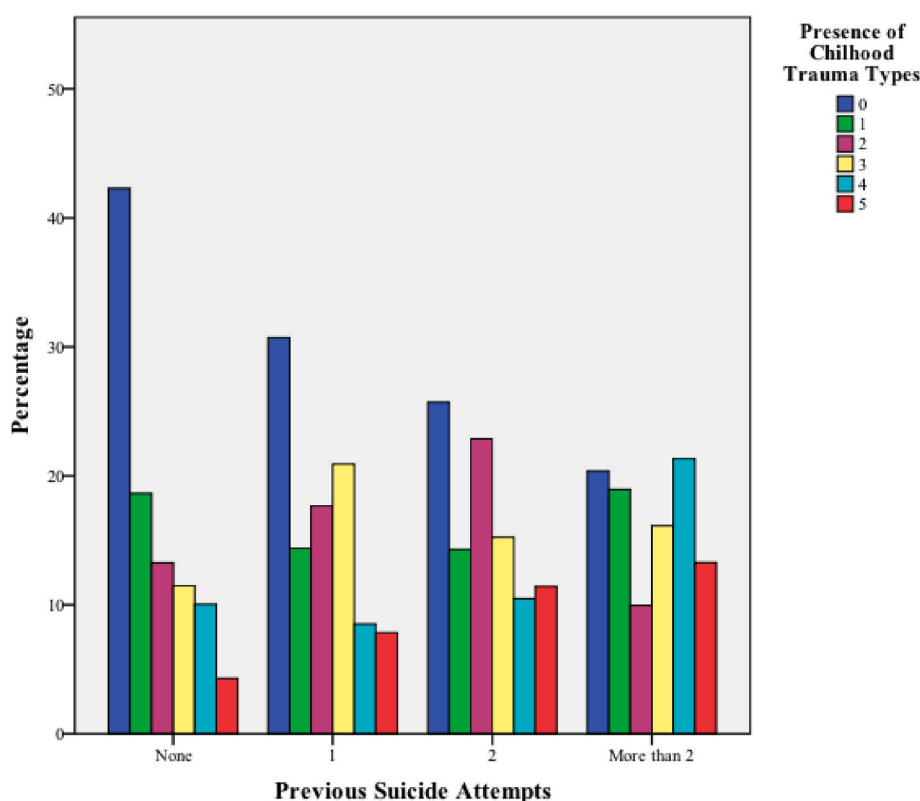


Fig. 3. Percentage of childhood trauma types from every group of none, one, two and more of two previous suicide attempts.

accuracy of our analyses, improve sample representativeness, and enable associations with clinical variables. Fourth, we assessed childhood trauma and RF using self-report measures, which are susceptible to mood state and social desirability biases. The retrospective measurement of childhood experiences relies on memory recall and is prone to bias. On the other hand, recent RFQ validation studies have excluded two items due to their insufficient psychometric qualities, supporting the use of the 6-item measure (RFQ-6) that has demonstrated higher internal consistency in adolescent (Bizzi et al., 2022) and adult samples (Spitzer et al., 2021). Additionally, while the Spanish RFQ validation recommends a unifactorial approach (Ruiz-Parra et al., 2023), we decided to follow original authors recommendations due to the test-retest stability (Fonagy et al., 2016). Finally, we measured five constructs of trauma using the CTQ, dismissing some others such as school bullying or parental divorce. Additionally, we did not consider the cumulative trauma load, which refers to experiences of childhood trauma at different temporal moments (Sacchi et al., 2020).

Our study has significant clinical implications for the development of suicide attempt prevention strategies. In our research, we identified associations between childhood abuse, fewer years of schooling, and age, with a higher risk of suicidal reattempts. Therefore, it is crucial to assess these factors in the evaluation of patients who have attempted suicide, allowing for the adjustment of therapeutic plans, and the development of targeted educational policies to address this issue. In routine clinical practice, a combination of pharmacological, psychosocial and psychotherapeutic interventions is commonly employed, with a focus on cognitive-behavioural treatments, dialectical-behavioural therapy, and mentalizing therapy (Ougrin et al., 2021; Salagre et al., 2021). Considering the significant role that RF plays in the risk of reattempt among patients who have experienced childhood trauma, it is crucial to incorporate in clinical practice interventions known to enhance mentalizing abilities. Previous studies have demonstrated the clinical effectiveness of mentalizing-based treatment programs (Bales et al., 2017; Green et al., 2021) in reducing suicidal behaviour,

highlighting the need for further research on RF interventions studies.

## 5. Conclusions

This is the first study supporting the mediational role of hypo and hypermentalizing in the relationship between EA and SA with the number of suicide attempt in lifetime. These results have important implications for reducing suicide rates and preventing future re-attempts. Further research analysing this mediating role, and prioritizing the development of mentalizing-based interventions is warranted.

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## CRediT authorship contribution statement

**J. Andreo-Jover:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **J. Curto Ramos:** Visualization. **J. Bobes:** Project administration. **M. Bravo-Ortiz:** Supervision. **A.I. Cebria:** Resources. **B. Crespo-Facorro:** Resources. **A. De la Torre-Luque:** Formal analysis, Supervision. **M. Díaz-Marsa:** Software. **V. Fernández-Rodrigues:** Resources. **N. Garrido-Torres:** Resources. **I. Grande:** Resources, Supervision. **M.P. López Peña:** Resources. **A. Pema:** Resources. **N. Roberto:** Resources. **M. Ruiz-Veguilla:** Supervision. **P. Saiz:** Resources. **B. Rodríguez-Vega:** Project administration, Supervision, Visualization. **V. Pérez-Sola:** Funding acquisition, Project administration.

## Declaration of competing interest

The authors declare no conflict of interest.

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## References

- Angelakis, I., Austin, J.L., Gooding, P., 2020. Association of childhood maltreatment with suicide behaviors among young people: a systematic review and meta-analysis. *JAMA Netw. Open* 3 (8), e2012563. <https://doi.org/10.1001/jamanetworkopen.2020.12563>.
- Angelakis, I., Gillespie, E.L., Panagioti, M., 2019. Childhood maltreatment and adult suicidality: a comprehensive systematic review with meta-analysis. *Psychol. Med.* 49 (7), 1057–1078. <https://doi.org/10.1017/S003329718003823>.
- Badoud, D., Luyten, P., Fonseca-Pedrero, E., Eliez, S., Fonagy, P., Debbané, M., 2015. The French version of the reflective functioning questionnaire: validity data for adolescents and adults and its association with non-suicidal self-injury. *PLoS One* 10 (12), e0145892. <https://doi.org/10.1371/journal.pone.0145892>.
- Baez, S., Tangarife, M.A., Davila-Mejia, G., Trujillo-Guiza, M., Forero, D.A., 2023. Performance in emotion recognition and theory of mind tasks in social anxiety and generalized anxiety disorders: a systematic review and meta-analysis. *Front. Psychiatry* 14, 1192683. <https://doi.org/10.3389/fpsy.2023.1192683>.
- Bales, D.L., Timman, R., Luyten, P., Busschbach, J., Verheul, R., Hutsebaut, J., 2017. Implementation of evidence-based treatments for borderline personality disorder: the impact of organizational changes on treatment outcome of mentalization-based treatment. *Pers. Ment. Health* 11 (4), 266–277. <https://doi.org/10.1002/pmh.1381>.
- Berardelli, I., Sarubbi, S., Rogante, E., Erbuto, D., Giuliani, C., Lamis, D.A., Innamorati, M., Pompili, M., 2022. Association between childhood maltreatment and suicidal ideation: a path analysis study. *J. Clin. Med.* 11 (8), 2179. <https://doi.org/10.3390/jcm11082179>.
- Bizzi, F., Charpentier Mora, S., Ensink, K., Cavanna, D., Borelli, J., 2020. Does children's mentalizing mediate the role of attachment and psychological maladjustment in middle childhood? *J. Child Fam. Stud.* 29, 1–11. <https://doi.org/10.1007/s10826-020-01701-9>.
- Bizzi, F., Riva, A., Borelli, J.L., Charpentier-Mora, S., Bomba, M., Cavanna, D., Nacinovich, R., 2022. The Italian version of the Reflective Functioning Questionnaire: validity within a sample of adolescents and associations with psychological problems and alexithymia. *J. Clin. Psychol.* 78 (4), 503–516. <https://doi.org/10.1002/jclp.23218>.
- Bizzi, F., Riva, A., Charpentier Mora, S., Tironi, M., Sforza, S.E., Milani, L.M., Nacinovich, R., 2023. Investigating functioning profile of adolescents with anorexia before and during the COVID-19 pandemic: a cross-sectional study on mentalizing, alexithymia, and impulsiveness. *Int. J. Environ. Res. Publ. Health* 20 (4). <https://doi.org/10.3390/ijerph20043670>. Article 4.
- Charpentier Mora, S., Bastianoni, C., Cavanna, D., Bizzi, F., 2022. Emerging adults facing the COVID-19 pandemic: emotion dysregulation, mentalizing, and psychological symptoms. *Curr. Psychol.* <https://doi.org/10.1007/s12144-022-03322-5>.
- Cortés-García, L., Akça, Ö.F., Wall, K., Sharp, C., 2021. Exploring mentalizing in adolescents with anorexia nervosa and borderline personality disorder: a comparative study of psychiatric inpatients and healthy controls. *Scandinavian Journal of Child and Adolescent Psychiatry and Psychology* 9, 16–26. <https://doi.org/10.21307/sjcap-2021-003>.
- Danner Touati, C., Miljkovitch, R., Sirparanta, A., Deborde, A.-S., 2022. The role of attachment to the foster parent with regard to suicidal risk among adult survivors of childhood maltreatment. *Child Abuse Neglect* 128, 104886. <https://doi.org/10.1016/j.chiabu.2020.104886>.
- De Meulemeester, C., Vansteelandt, K., Luyten, P., Lowyck, B., 2018. Mentalizing as a mechanism of change in the treatment of patients with borderline personality disorder: a parallel process growth modeling approach. *Personality Disorders: Theory, Research, and Treatment* 9 (1), 22–29. <https://doi.org/10.1037/per0000256>.
- De Oliveira, C., Rahioui, H., Smadja, M., Gorsane, M.A., Louppe, F., 2017. Thérapie basée sur la mentalisation et le trouble de personnalité limite. *L'Encéphale* 43 (4), 340–345. <https://doi.org/10.1016/j.encep.2016.02.020>.
- Diago, M., Vila-Badia, R., Serra-Arumí, C., Butjosa, A., Del Cacho, N., Esteban Sanjusto, M., Colomer-Salvans, A., Sánchez, L., Dolz, M., Muñoz-Samons, D., Profet, G., Usall, J., 2022. Emotional abuse and perceived stress: the most relevant factors in suicide behavior in first-episode psychosis patients. *Psychiatr. Res.* 315, 114699. <https://doi.org/10.1016/j.psychres.2022.114699>.
- Dickhoff, J., Opmeer, E.M., Heering, H.D., Bruggeman, R., van Amelsvoort, T., Bartels-Velthuis, A.A., Cahn, W., de Haan, L., Schirmbeck, F., Simons, C.J.P., van Os, J., Aleman, A., van Tol, M.-J., 2021. Relationship between social cognition, general cognition, and risk for suicide in individuals with a psychotic disorder. *Schizophr. Res.* 231, 227–236. <https://doi.org/10.1016/j.schres.2021.02.024>.
- Duño, R., Pousa, E., Miguélez, M., Montalvo, I., Suarez, D., Tobeña, A., 2009. Suicidality connected with mentalizing anomalies in schizophrenia. *Ann. N. Y. Acad. Sci.* 1167 (1), 207–211. <https://doi.org/10.1111/j.1749-6632.2009.04602.x>.
- Erbuto, D., Innamorati, M., Lamis, D.A., Berardelli, I., Forte, A., De Pisa, E., Migliorati, M., Serafini, G., Gonda, X., Rihmer, Z., Fiorillo, A., Amore, M., Girardi, P., Pompili, M., 2018. Mediators in the association between affective temperaments and suicide risk among psychiatric inpatients. *Psychiatry* 81 (3), 240–257. <https://doi.org/10.1080/00332747.2018.1480251>.
- Fjeldsted, R., Teasdale, T.W., Bach, B., 2020. Childhood trauma, stressful life events, and suicidality in Danish psychiatric outpatients. *Nord. J. Psychiatry* 74 (4), 280–286. <https://doi.org/10.1080/08039488.2019.1702096>.
- Flores-Kanter, P.E., Alesandrini, C., Alvarado, J.M., 2023. Columbia suicide severity rating scale: evidence of construct validity in argentinians. *Behav. Sci.* 13 (3), 198. <https://doi.org/10.3390/bs13030198>.
- Fonagy, P., Allison, E., 2015. Mentalization-based treatment. In: *The Encyclopedia of Clinical Psychology*. John Wiley & Sons, Ltd, pp. 1–3. <https://doi.org/10.1002/9781118625392.wbecp311>.
- Fonagy, P., Luyten, P., Moulton-Perkins, A., Lee, Y.-W., Warren, F., Howard, S., Ghinai, R., Fearon, P., Lowyck, B., 2016. Development and validation of a self-report measure of mentalizing: the reflective functioning questionnaire. *PLoS One* 11 (7), e0158678. <https://doi.org/10.1371/journal.pone.0158678>.
- Fonagy, P., Target, M., 1997. Attachment and reflective function: their role in self-organization. *Dev. Psychopathol.* 9 (4), 679–700. <https://doi.org/10.1017/S0954579497001399>.
- Green, J., Berry, K., Danquah, A., Pratt, D., 2021. Attachment security and suicide ideation and behaviour: the mediating role of reflective functioning. *Int. J. Environ. Res. Publ. Health* 18 (6), 3090. <https://doi.org/10.3390/ijerph18063090>.
- Griffiths, H., Duffy, L., Duffy, L., Brown, S., Hockaday, H., Eliasson, E., Graham, J., Smith, J., Thomson, A., Schwannauer, M., 2019. Efficacy of Mentalization-based group therapy for adolescents: the results of a pilot randomised controlled trial. *BMC Psychiatry* 19 (1), 167. <https://doi.org/10.1186/s12888-019-2158-8>.
- Hadland, S.E., Wood, E., Dong, H., Marshall, B.D.L., Kerr, T., Montaner, J.S., DeBeck, K., 2015. Suicide attempts and childhood maltreatment among street youth: a prospective cohort study. *Pediatrics* 136 (3), 440–449. <https://doi.org/10.1542/peds.2015-1108>.
- Hatkevich, C., Venta, A., Sharp, C., 2019. Theory of mind and suicide ideation and attempt in adolescent inpatients. *J. Affect. Disord.* 256, 17–25. <https://doi.org/10.1016/j.jad.2019.05.051>.
- Hayes, A.F., 2017. Introduction to mediation, moderation, and conditional process analysis. In: *A Regression-Based Approach*, second ed. Guilford Publications.
- Hernandez, A., Gallardo-Pujol, D., Pereda, N., Arntz, A., Bernstein, D.P., Gaviria, A.M., Labad, A., Valero, J., Gutiérrez-Zotes, J.A., 2013. Initial validation of the Spanish childhood trauma questionnaire-short form: factor structure, reliability and association with parenting. *J. Interpers. Violence* 28 (7), 1498–1518. <https://doi.org/10.1177/0886260512468240>.
- Hernández-Calle, D., Andreo-Jover, J., Curto-Ramos, J., Martínez, D.G., Valor, L.V., Juárez, G., Alcamí, M., Ortiz, A., Iglesias, N., Bravo-Ortiz, M.F., Vega, B.R., Martínez-Alés, G., 2022. Pediatric mental health emergency visits during the COVID-19 pandemic. *Scandinavian Journal of Child and Adolescent Psychiatry and Psychology* 10 (1), 53–57. <https://doi.org/10.2478/sjcap-2022-0005>.
- Ihme, H., Courtet, P., Risch, N., Dubois, J., Belzeaux, R., Olié, E., 2023. Mediation effect of anxious attachment on relationship between childhood trauma and suicidal ideation sensitive to psychological pain levels. *Eur. Psychiatry: The Journal of the Association of European Psychiatrists* 66 (1), e79. <https://doi.org/10.1192/j.eurpsy.2023.2452>.
- Ihme, H., Olié, E., Courtet, P., El-Hage, W., Zendjidian, X., Mazzola-Pomietto, P., Consoloni, J.-L., Deruelle, C., Belzeaux, R., 2022. Childhood trauma increases vulnerability to attempt suicide in adulthood through avoidant attachment. *Compr. Psychiatry* 117, 152333. <https://doi.org/10.1016/j.comppsych.2022.152333>.
- Kristiansen, V.R., Handeland, T.B., Lau, B., Söderström, K., Håkansson, U., Øie, M.G., 2020. Trauma in childhood and adolescence and impaired executive functions are associated with uncertain reflective functioning in mothers with substance use disorder. *Addictive Behaviors Reports* 11, 100245. <https://doi.org/10.1016/j.abrep.2019.100245>.

- Kuipers, G.S., van Loenhout, Z., van der Ark, L.A., Bekker, M.H.J., 2016. Attachment insecurity, mentalization and their relation to symptoms in eating disorder patients. *Am. J. Bioeth.* 18 (3), 250–272. <https://doi.org/10.1080/14616734.2015.1136660>.
- Lassri, D., Desatnik, A., 2020. Losing and regaining reflective functioning in the times of COVID-19: clinical risks and opportunities from a mentalizing approach. *Psychological Trauma: Theory, Research, Practice, and Policy* 12, S38–S40. <https://doi.org/10.1037/tra0000760>.
- Li, E.T., Carracher, E., Bird, T., 2020. Linking childhood emotional abuse and adult depressive symptoms: the role of mentalizing incapacity. *Child Abuse Neglect* 99, 104253. <https://doi.org/10.1016/j.chiabu.2019.104253>.
- Liu, J., Fang, Y., Gong, J., Cui, X., Meng, T., Xiao, B., He, Y., Shen, Y., Luo, X., 2017. Associations between suicidal behavior and childhood abuse and neglect: a meta-analysis. *J. Affect. Disord.* 220, 147–155. <https://doi.org/10.1016/j.jad.2017.03.060>.
- Maguire, S.A., Williams, B., Naughton, A.M., Cowley, L.E., Tempest, V., Mann, M.K., Teague, M., Kemp, A.M., 2015. A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse. *Child Care Health Dev.* 41 (5), 641–653. <https://doi.org/10.1111/cch.12227>.
- Martin, J., Raby, K.L., Labella, M.H., Roisman, G.I., 2017. Childhood abuse and neglect, attachment states of mind, and non-suicidal self-injury. *Am. J. Bioeth.* 19 (5), 425–446. <https://doi.org/10.1080/14616734.2017.1330832>.
- Miranda-Mendizabal, A., Castellví, P., Parés-Badell, O., Alayo, I., Almenara, J., Alonso, I., Blasco, M.J., Cebrià, A., Gabilondo, A., Gili, M., Lagares, C., Piqueras, J.A., Rodríguez-Jiménez, T., Rodríguez-Marín, J., Roca, M., Soto-Sanz, V., Vilagut, G., Alonso, J., 2019. Gender differences in suicidal behavior in adolescents and young adults: systematic review and meta-analysis of longitudinal studies. *Int. J. Publ. Health* 64 (2), 265–283. <https://doi.org/10.1007/s00038-018-1196-1>.
- Nestor, B.A., Sutherland, S., 2022. Theory of mind and suicidality: a meta-analysis. *Arch. Suicide Res.: Official Journal of the International Academy for Suicide Research* 26 (4), 1666–1687. <https://doi.org/10.1080/13811118.2021.1939209>.
- Ougrin, D., Wong, B.H., Vaeznejad, M., Plener, P.L., Mehdi, T., Romaniuk, L., Barrett, E., Hussain, H., Lloyd, A., Tolmac, J., Rao, M., Chakrabarti, S., Carucci, S., Moghraby, O. S., Elvins, R., Rozali, F., Skouta, E., McNicholas, F., Kuruppuaracchi, N., Landau, S., 2021. Pandemic-related emergency psychiatric presentations for self-harm of children and adolescents in 10 countries (PREP-kids): a retrospective international cohort study. *Eur. Child Adolesc. Psychiatr.* <https://doi.org/10.1007/s00787-021-01741-6>.
- Pathirathna, M.L., Nandasena, H.M.R.K.G., Atapattu, A.M.M.P., Weerasekara, I., 2022. Impact of the COVID-19 pandemic on suicidal attempts and death rates: a systematic review. *BMC Psychiatr.* 22 (1), 506. <https://doi.org/10.1186/s12888-022-04158-w>.
- Pérez, V., Elices, M., Toll, A., Bobes, J., López-Solà, C., Díaz-Marsá, M., Grande, I., López-Peña, P., Rodríguez-Vega, B., Ruiz-Veguilla, M., de la Torre-Luque, A., SURVIVE Group., 2020. The Suicide Prevention and Intervention Study (SURVIVE): study protocol for a multisite cohort study with nested randomized-controlled trials. *Rev. Psiquiatría Salud Ment.* S1888–9891 (20) <https://doi.org/10.1016/j.rpsm.2020.11.004>, 30127-0.
- Posner, K., Brown, G.K., Stanley, B., Brent, D.A., Yershova, K.V., Oquendo, M.A., Currier, G.W., Melvin, G.A., Greenhill, L., Shen, S., Mann, J.J., 2011. The columbia-suicide severity rating scale: initial validity and internal consistency findings from three multisite studies with adolescents and adults. *Am. J. Psychiatr.* 168 (12), 1266–1277. <https://doi.org/10.1176/appi.ajp.2011.10111704>.
- Ruiz-Parra, E., Manzano-García, G., Mediavilla, R., Rodríguez-Vega, B., Lahera, G., Moreno-Pérez, A.I., Torres-Cantero, A.M., Rodado-Martínez, J., Bilbao, A., González-Torres, M.A., 2023. The Spanish version of the reflective functioning questionnaire: validity data in the general population and individuals with personality disorders. *PLoS One* 18 (4), e0274378. <https://doi.org/10.1371/journal.pone.0274378>.
- Sacchi, L., Merzhvynska, M., Augsburg, M., 2020. Effects of cumulative trauma load on long-term trajectories of life satisfaction and health in a population-based study. *BMC Publ. Health* 20 (1), 1612. <https://doi.org/10.1186/s12889-020-09663-9>.
- Salagre, E., Grande, I., Jiménez, E., Mezquida, G., Cuesta, M.J., Llorente, C., Amoretti, S., Lobo, A., González-Pinto, A., Carballo, J.J., Corripio, I., Verdolini, N., Castro-Fornieles, J., Legido, T., Carvalho, A.F., Vieta, E., Bernardo, M., PEPs Group, 2021. Trajectories of suicidal ideation after first-episode psychosis: a growth mixture modeling approach. *Acta Psychiatr. Scand.* 143 (5), 418–433. <https://doi.org/10.1111/acps.13279>.
- Senna, S., Schwab, B., Melo, H.M., Diaz, A.P., Schwarzbald, M.L., 2022. Social cognition and suicide-related behaviors in depression: a cross-sectional, exploratory study. *Rev. Bras. Psiquiatr.* 44 (6), 639–643. <https://doi.org/10.47626/1516-4446-2021-2407>.
- Simon, M., Németh, N., Gálber, M., Lakner, E., Csernel, E., Tényi, T., Czéh, B., 2019. Childhood adversity impairs theory of mind abilities in adult patients with major depressive disorder. *Front. Psychiatr.* 10. <https://www.frontiersin.org/articles/10.3389/fpsyt.2019.00867>.
- Spitzer, C., Zimmermann, J., Brähler, E., Euler, S., Wendt, L., Müller, S., 2021. Die deutsche Version des Reflective Functioning Questionnaire (RFQ): eine teststatistische Überprüfung in der Allgemeinbevölkerung. *PPmP - Psychotherapie · Psychosomatik · Medizinische Psychologie* 71 (03/04), 124–131. <https://doi.org/10.1055/a-1234-6317>.
- Stagaki, M., Nolte, T., Feigenbaum, J., King-Casas, B., Lohrenz, T., Fonagy, P., Montague, P.R., 2022. The mediating role of attachment and mentalising in the relationship between childhood maltreatment, self-harm and suicidality. *Child Abuse Neglect* 128, 105576. <https://doi.org/10.1016/j.chiabu.2022.105576>.
- Streiner, D.L., Norman, G.R., Cairney, J., 2015. *Health Measurement Scales: A Practical Guide to Their Development and Use*. Oxford University Press.
- Tmej, A., Fischer-Kern, M., Doering, S., Alexopoulos, J., Buchheim, A., 2018. Changes in attachment representation in psychotherapy: is reflective functioning the crucial factor? *Z. Psychosom. Med. Psychother.* 64 (3), 222–236. <https://doi.org/10.13109/zptm.2018.64.3.222>.
- Valdivieso Jiménez, G., 2020. *Papel de la mentalización en la Personalidad y sus Trastornos*, vol. 1, pp. 16–27.
- Weijers, J., Fonagy, P., Eurelings-Bontekoe, E., Termorshuizen, F., Viechtbauer, W., Seltén, J.P., 2018. Mentalizing impairment as a mediator between reported childhood abuse and outcome in nonaffective psychotic disorder. *Psychiatr. Res.* 259, 463–469. <https://doi.org/10.1016/j.psychres.2017.11.010>.