

BRIEF REPORT

The association between childhood maltreatment and suicidal intrusions: A cross-sectional study

Jaël S. van Bentum¹  | Marit Sijbrandij^{1,2}  | Fenna Saueressig¹ | Marcus J.H. Huibers^{1,3} 

¹Department of Clinical Neuro and Developmental Psychology, Amsterdam Public Health Research Institute, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

²World Health Organization Collaborating Centre for Research and Dissemination of Psychological Interventions, Vrije Universiteit Amsterdam, The Netherlands

³Department of Psychology, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Correspondence

Jaël van Bentum, Vrije Universiteit Amsterdam, van der Boechorststraat 7, 1081 BT, Amsterdam.
Email: j.s.van.bentum@vu.nl

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Abstract

Childhood maltreatment may play an important role in the transition from suicidal ideation to suicidal behavior. Recently, research has begun evaluating the association between childhood maltreatment and involuntary and distressing intrusions about one's own suicide, also called suicidal intrusions. This cross-sectional, multicenter study aimed to investigate the association between childhood maltreatment and the severity of suicidal intrusions using online questionnaires. Participants were suicidal outpatients currently receiving treatment at a Dutch mental health institution ($N = 149$). The Childhood Trauma Questionnaire–Short Form and Suicidal Intrusions Attributes Scale were administered online. A simple linear regression was performed followed by a multiple linear regression with backward selection to separate the predictors of childhood maltreatment subscales. Next, significant predictor variables were used to perform an additional regression analysis with gender, age, posttraumatic stress disorder (PTSD) diagnosis, and depressive symptoms as potential covariates. The results showed that childhood maltreatment was significantly associated with suicidal intrusion scores, $B = .22$, $t(147) = 2.010$, $p = .046$. A multiple linear regression analysis showed that the only specific form of childhood maltreatment associated with suicidal intrusions was sexual abuse; the association remained after controlling for age, gender, PTSD diagnosis and depressive symptoms, $F(5, 143) = 11.15$, $p < .001$. In summary, the present study confirms the link between childhood maltreatment, particularly childhood sexual abuse, and suicidal intrusions. This finding implies that in the treatment of suicidal intrusions and suicidality, childhood sexual abuse should be identified and targeted with evidence-based treatments for PTSD.

Experiencing childhood maltreatment is one of the biggest risk factors for developing psychopathology in adulthood (Thabrew et al., 2011). Childhood maltreatment is defined

as physical or emotional abuse and neglect that occurs before 18 years of age (World Health Organization, 2021). Population-attributable risk proportions suggest that the

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removal of childhood adversities would lead to a 29.8% reduction in all psychiatric disorders (Kessler et al., 2010). Various studies have shown that there are strong links between childhood maltreatment and suicidal ideation and attempts (Angst et al., 2014; Björkenstam et al., 2016; Bruffaerts et al., 2015; Hughes et al., 2016). For example, women who attempt suicide and report a history of sexual abuse have been shown to be more vulnerable to repeated suicidal behavior (van Egmond et al., 1993), and men who report more frequent sexual abuse and whose experience involved the use of force have demonstrated a higher risk of attempting suicide (Easton et al., 2013). Furthermore, the findings from a recent meta-analysis revealed that suicide attempts were 2.5–3 times more likely among individuals who experienced sexual, physical, or emotional abuse as a child compared to those who did not (Angelakis et al., 2019).

Childhood maltreatment may play a particularly important role in the transition from suicidal ideation to suicidal behavior. Childhood adversities and traumatic experiences together were found to explain 29% of new-onset suicide attempts among individuals who reported suicidal ideation (Bruffaerts et al., 2015). In addition to access to means, exposure to suicide, and past suicidal behavior, the presence of suicidal intrusions may play a role in governing this transition from ideation or intent to attempt (O'Connor & Kirtley, 2018). People may experience intrusive, uncontrollable, and involuntary mental images about their own suicide or the consequences thereof, also referred to as “suicidal flash-forwards/intrusions” (Holmes et al., 2007; van Bentum et al., 2017). Previous studies have shown the impact of childhood maltreatment on brain development (i.e., impaired prefrontal inhibition, limbic system, and prefrontal cortex), which, in turn, may be related to an inability to inhibit intrusive thoughts (De Bellis & Zisk, 2014; Jaworska-Andryszewska & Rybakowski, 2019; Kim et al., 2018; Schmitz et al., 2017; Zhu et al., 2019). To date, only one study of which we are aware has examined the association between childhood maltreatment and suicidal intrusions. Schultebrasucks et al. (2020) found that traumatic experiences during childhood were associated with increases in the characteristics of suicidal images; specifically, the more severe childhood traumatic experiences an individual reported, the more action-provoking the suicidal image they described. However, the sample size in this study was small ($N = 74$), and the authors did not distinguish between types of childhood maltreatment in relation to suicidal intrusions (e.g. emotional, physical, sexual abuse).

The extent to which different suicide risk factors influence each other is still relatively unknown (Bruffaerts et al., 2015). An important known risk factor for suicide is

the comorbidity of mental disorders, particularly depression, mood disorders (Franklin et al., 2017), and posttraumatic stress disorder (PTSD; LeBouthillier et al., 2015). Although demographic characteristics, such as age and gender, are also known risk factors for suicidal thoughts and behavior (Huang et al., 2017), it is likely that they interact with other risk factors, potentially increasing the risk of suicide. Suicidal attempts seem to occur earlier and more frequently in women, with childhood trauma conferring the greatest risk (Angst et al., 2014). Research has established that women develop PTSD approximately twice as often as men (Olf, 2017). Even when compared directly to men, women experience more intrusions related to emotional images after experiencing a traumatic event (Hsu et al., 2018). Currently, there are no data on age and gender differences in the association between childhood maltreatment and suicidal intrusions.

Therefore, the present study aimed to investigate the association between childhood maltreatment (i.e., physical abuse and neglect, emotional abuse and neglect, and sexual abuse) and the occurrence of suicidal intrusions. In addition, age, gender, PTSD diagnosis, and depressive symptoms were examined as potential covariates. Given the existing evidence, we hypothesized that sexual abuse would be strongly associated with suicidal intrusions.

METHOD

Participants

The current research used a cross-sectional quantitative research design. The Medical Ethical Review Committee of the Amsterdam UMC, location VUmc (protocol number 2017.237) approved the study protocol, and all participants provided oral and written informed consent. Data were collected in the context of a large, ongoing multicenter study (van Bentum et al., 2019) investigating the occurrence of suicidal intrusions among outpatients with various mental disorders (see Table 1). The study was conducted at seven mental health institutions in the Netherlands and included 149 outpatients. The inclusion criteria were (a) a score of 1 or higher on the Suicidal Ideation Attributes Scale (SIDAS; Van Spijker et al., 2014), (b) age 18 years and older, (c) proficiency in the Dutch language, and (d) currently receiving treatment at one of the participating mental health institutions. Individuals were excluded if they had a current psychotic disorder according to criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (fourth ed.; DSM-IV; American Psychiatric Association, 1994), as confirmed by the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998).

TABLE 1 Patient demographic and descriptive characteristics

| Variable | <i>n</i> | % | <i>M</i> | <i>SD</i> | Range |
|--|----------|------|----------|-----------|--------|
| Female gender | 92 | 61.7 | | | |
| Age (years) | | | 35.86 | 13.38 | |
| Educational attainment ^a | | | | | |
| Low | 11 | 7.4 | | | |
| Medium | 87 | 58.4 | | | |
| High | 51 | 34.2 | | | |
| In a relationship with a partner or spouse | 60 | 40.3 | | | |
| DSM-IV diagnoses | | | | | |
| Major depressive disorder | 116 | 85.9 | | | |
| Dysthymia | 9 | 6.7 | | | |
| Posttraumatic stress disorder | 24 | 17.9 | | | |
| Panic disorder | 49 | 36.6 | | | |
| Generalized anxiety disorder | 31 | 23.1 | | | |
| Social phobia | 29 | 21.6 | | | |
| Agoraphobia | 28 | 20.9 | | | |
| Obsessive–compulsive disorder | 12 | 9.0 | | | |
| Psychotic disorder | 3 | 2.2 | | | |
| Alcohol dependence | 8 | 5.9 | | | |
| Drug dependence | 7 | 5.2 | | | |
| Number of comorbid Axis I disorders ^b | | | 2.57 | 1.58 | |
| Suicidal intrusions (SINAS) | | | 45.58 | 24.36 | 0–98 |
| Childhood trauma (CTQ-SF) | | | 48.95 | 18.00 | 21–101 |
| Depressive symptoms (BDI-II) | | | 37.33 | 10.14 | 10–62 |

Note: *N* = 149. SINAS = Suicidal Intrusions Attributes Scale; CTQ = Childhood Trauma Questionnaire–Short Form; BDI-II = Beck Depression Inventory–II.

^aLow educational attainment is defined as having no formal education or having completed special lower education, primary school, or practical training school; middle educational attainment is defined as having completed lower general secondary education, higher general secondary education, or intermediate vocational education; higher educational attainment is defined as having completed higher vocational education, pre-university education, or a university degree. ^bComorbid Axis I disorders were established with the use of the Mini-International Neuropsychiatric Interview.

Procedure

Patients were recruited at various Dutch specialized mental health care centers. If a therapist believed a patient was eligible to participate, the patient was asked for oral consent to be contacted by the research team and informed about the study. Patients who decided to participate were seen face-to-face to complete oral and written informed consent after a minimum of 1 week. Then, patients were screened for current suicidal ideation (SIDAS; Van Spijker et al., 2014); current depressive symptoms (Beck Depression Inventory–II [BDI-II]; Beck et al., 1996); and DSM-IV diagnoses, including PTSD, (MINI; Sheehan et al., 1998; van Vliet & de Beurs, 2007). Patients were asked to complete a set of online self-report assessments, including a demographic questionnaire, the Childhood Trauma Questionnaire–Short Form (CTQ-SF; Bernstein et al., 2003), and the Suicidal Intrusions Attributes Scale (SINAS; van Bentum et al., 2017). All patients who agreed

to be interviewed about their experiences with suicidal intrusions using the Intrusion Interview (Holmes et al., 2007) were included (*N* = 149).

Measures

Demographic characteristics

Demographic characteristics such as age, sex, education, employment, and marital status were collected with a general demographic questionnaire.

DSM-IV psychiatric disorders

The MINI (Sheehan et al., 1998; Dutch version: van Vliet & de Beurs, 2007) is a short structured psychiatric interview used to assess current and past DSM-IV disorders.

Comparisons of the MINI with the Structured Clinical Interview for *DSM-III-R* (SCID) and Composite International Diagnostic Interview (CIDI) have demonstrated good-to-excellent concurrent validity and excellent inter-rater reliability (i.e., $ks = 0.79$ to < 1.00 ; Lecrubier et al., 1997; Sheehan et al., 1998).

Suicidal ideation

The SIDAS (Van Spijker et al., 2014) is a self-report instrument used to measure the presence and severity of suicidal ideation. It contains five items related to past-month frequency, controllability, closeness to attempt, distress, and interference with daily activities, which respondents rate on a 10-point scale. Total scores were calculated as the sum of all items and ranged from 0 to 50, with scores above 21 indicating a high risk of suicidal behavior. In the present study, the SIDAS demonstrated moderate internal consistency, Cronbach's $\alpha = .77$.

Depressive symptoms

The 21-item BDI-II (Beck et al., 1996) consists of self-evaluative statements about symptoms related to depression. Respondents score items on a scale of 0 to 3, with higher scores indicating more severe depressive symptoms. Total scores range from 0 to 63, and scores above 16 indicate clinical depression. The Dutch version of the instrument, which was used in the present study, has demonstrated a high level of reliability and validity (Van Der Does, 2002). In the present study, the BDI-II demonstrated good internal consistency, Cronbach's $\alpha = .86$.

Suicidal intrusions

The SINAS (van Bentum et al., 2017), developed specifically for the present study, was used to assess suicidal intrusions. The instrument is a 10-item, self-report questionnaire used to evaluate the frequency, intensity, vividness, and uncontrollability of suicidal intrusions. Each item (e.g., "How often did you experience images about your own suicide?") is scored on a 10-point scale ranging from 0 (*not at all*) to 10 (*constantly*). Total scores were calculated as the sum of all items, with the item related to the controllability of suicidal intrusions reverse-scored. Scores range from 0 to 100, with higher scores indicating a higher frequency and severity of suicidal intrusions. In the present study, internal consistency was good, Cronbach's $\alpha = .91$. Correlations between the SINAS and CTQ-SF subscales can be found in the Supplementary Materials.

Childhood maltreatment

The CTQ-SF (Bernstein et al., 2003) is a 28-item, self-report questionnaire designed to assess five types of negative childhood experiences: physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect. Each item is scored on a 5-point scale ranging from 1 (*never true*) to 5 (*very often true*). Total scores are calculated as the sum of all items and range between 25 and 125, with higher scores reflecting a higher frequency of childhood traumatic events. We removed Item 21 (i.e., "During my childhood, I was molested by someone") because the Dutch translation of this item does not appear to be a valid indicator of sexual abuse (Thombs et al., 2009); thus, total possible scores ranged between 24 and 120. In the present study, Cronbach's alpha values were .84 for the Physical abuse subscale, .95 for the Sexual Abuse subscale, .90 for the Emotional Abuse subscale, .90 for the Emotional Neglect subscale, .71 for the Physical Neglect subscale, and .93 for the total scale.

Data analysis

Descriptive statistics were used to explore patient characteristics ($N = 149$). There was no missing data. Prior to the regression analyses, assumptions of linearity, multicollinearity, and homoscedasticity were checked. No outliers based on the Mahalanobis distance, Cooks distance, and leverage point tests were detected. Pearson correlations were assessed among all variables and subscales of childhood maltreatment (see Supplementary Materials). In addition, we checked whether comorbidity (i.e., multiple diagnoses present) was correlated with childhood maltreatment and the severity of suicidal intrusions.

First, a simple linear regression analysis was performed to analyze the association between childhood maltreatment (independent variable) and the severity of suicidal intrusions (dependent variable). Next, a multiple linear regression analysis was conducted to separate the CTQ-SF childhood maltreatment subscales and their effects on suicidal intrusions. A backward-selection method was applied, with a significance level of $p < .05$. The following variables were entered in the first model: sexual abuse, physical abuse, emotional abuse, emotional neglect, and physical neglect. The backward-selection method was chosen to prevent coincidence findings, as this method starts with all variables corrected for each other. Significant predictor variables (i.e., $p < .05$) in the final model derived from the multiple regression analysis were then used to do an additional regression analysis with gender, age, PTSD diagnosis, and depressive symptoms as covariates, wherein each covariate was entered separately, then all covariates

TABLE 2 Summary of multiple regression analysis for Childhood Trauma Questionnaire–Short Form (CTQ-SF) subscales associated with suicidal intrusions

| Model and CTQ-SF subscale | <i>B</i> | <i>SE</i> | 95% CI | <i>R</i> ² | Adjusted <i>R</i> ² | <i>p</i> |
|---------------------------|----------|-----------|---------------|-----------------------|--------------------------------|----------|
| Model 1 | | | | .054 | .021 | .153 |
| Sexual abuse | 0.99 | 0.56 | [−0.11, 2.09] | | | |
| Physical abuse | 0.13 | 0.61 | [−1.08, 1.34] | | | |
| Emotional abuse | 0.69 | 0.55 | [−0.40, 1.78] | | | |
| Emotional neglect | −0.38 | 0.60 | [−1.56, 0.79] | | | |
| Physical neglect | −0.23 | 0.74 | [−1.69, 1.22] | | | |
| Model 2 | | | | .054 | .028 | .090 |
| Sexual abuse | 1.004 | 0.55 | [−0.08, 2.09] | | | |
| Emotional abuse | 0.73 | 0.52 | [−0.29, 1.75] | | | |
| Emotional neglect | −0.37 | 0.59 | [−1.56, 0.79] | | | |
| Physical neglect | −0.23 | 0.73 | [−1.68, 1.22] | | | |
| Model 3 | | | | .053 | .034 | .047 |
| Sexual abuse | 0.10 | 0.55 | [−0.08, 2.08] | | | |
| Emotional abuse | 0.70 | 0.51 | [−0.30, 1.70] | | | |
| Emotional neglect | −0.47 | 0.53 | [−1.52, 0.59] | | | |
| Model 4 | | | | .048 | .035 | .027 |
| Sexual abuse | 0.98 | 0.55 | [−0.10, 2.06] | | | |
| Emotional abuse | 0.39 | 0.36 | [−0.32, 1.09] | | | |
| Model 5 | | | | .041 | .034 | .014 |
| Sexual abuse | 1.23 | 0.50 | [0.26, 2.21] | | | |

Note: *N* = 149.

were added to the model to examine their total effect. All analyses were performed with SPSS (Version 27).

RESULTS

Description of the sample

The mean participant age was 35.86 years (*SD* = 13.38), and 61.7% of the sample was female. Table 1 provides the patient demographic and descriptive characteristics of all measures, including childhood maltreatment, depressive symptoms, and the severity of suicidal intrusions. Comorbidity was not significantly correlated to childhood maltreatment $r(133) = .10$, $p = .247$, but was positively correlated with suicidal intrusions, $r(133) = .20$, $p = .019$.

Associations between childhood maltreatment and suicidal intrusions

A simple linear regression revealed that childhood maltreatment, as measured using the total CTQ-SF, significantly predicted suicidal intrusion scores, $F(1,147) = 4.04$, $p = .046$, $R^2 = .027$. A multiple linear regression (Table 2) revealed that Model 1, which included all CTQ-SF sub-

scales predicting suicidal intrusions was not significant, $F(5, 143) = 2.05$, $p = .153$, $R^2 = .054$. Model 2, from which physical abuse was removed, was also not significant, $F(4, 144) = 2.72$, $p = .090$, $R^2 = .054$. In Model 3, removing physical neglect significantly reduced the explained variance in suicidal intrusions by 0.1%, $F(3, 145) = 2.72$, $p = .047$, $R^2 = .053$. Removing emotional neglect in Model 4 significantly reduced the explained variance in suicidal intrusions 0.5%, $F(2, 146) = 3.71$, $p = .027$, $R^2 = .048$. Finally, removing emotional abuse in Model 5, leaving only sexual abuse as a significant predictor variable, significantly reduced the explained variance in suicidal intrusions by 0.8% and this was significant ($F(1,147) = 6.23$, $p = 0.014$), with an R^2 of .041.

Potential covariates in the association between sexual abuse and suicidal intrusions

Multiple linear regression was performed to examine the association between sexual abuse (independent variable) and the severity of suicidal intrusions (dependent variable), with gender, age, PTSD diagnosis, and depressive symptoms entered as covariates (Table 3). A significant regression equation was found, $F(5, 143) = 11.15$, $p < .001$,

TABLE 3 Summary of multiple regression analysis for sexual abuse associated with suicidal intrusions with gender, age, posttraumatic stress disorder (PTSD) diagnosis, and depressive symptoms as potential covariates

| Model and covariate | <i>B</i> | <i>SE</i> | 95% CI | <i>R</i> ² | Adjusted <i>R</i> ² | <i>p</i> |
|----------------------------------|----------|-----------|----------------|-----------------------|--------------------------------|----------|
| Model 1 | | | | .041 | .34 | .014 |
| Sexual abuse | 1.23 | 0.50 | [0.26, 2.21] | | | |
| Model 2 | | | | .077 | .058 | .008 |
| Sexual abuse | 1.63 | 0.53 | [0.60, 2.67] | | | |
| Age | −0.36 | 0.15 | [−0.67, −0.06] | | | |
| Gender | −4.16 | 4.24 | [−12.54, 4.22] | | | |
| Model 3 | | | | .281 | .255 | .001 |
| Sexual abuse | 1.21 | 0.51 | [0.20, 2.23] | | | |
| Age | −0.36 | 0.14 | [−0.63, −0.09] | | | |
| Gender | −5.53 | 3.79 | [−13.03, 1.96] | | | |
| PTSD diagnosis | −4.05 | 5.34 | [−14.61, 6.52] | | | |
| Depressive symptoms ^a | 1.11 | 0.18 | [0.77, 1.46] | | | |

Note: *n* = 148.

^aAssessed using the Beck Depression Inventory–II.

$R^2 = .28$. After all covariates were added to the model, the predictive value of sexual abuse increased, $B = 1.21$, $t(143) = 2.36$, $p = .020$. There was a significant association between age and suicidal intrusions, $B = -0.36$, $t(143) = -2.62$, $p = .010$, suggesting that younger age was associated with more severe suicidal intrusions. Moreover, there was a significant association between depressive symptoms and suicidal intrusions, $B = 1.11$, $t(143) = 6.35$, $p < .001$, such that more severe depressive symptoms were associated with more severe suicidal intrusions. There was no significant association between PTSD diagnosis and suicidal intrusions, $B = -4.05$, $t(143) = -0.76$, $p = .450$.

DISCUSSION

To our knowledge, this was one of the first studies to explore the association between the subscales of childhood maltreatment and suicidal intrusions. Primarily, we found a significant association between childhood maltreatment and suicidal intrusions. Next, when examining CTQ-SF childhood maltreatment subscales, only childhood sexual abuse appeared to be a significant predictor. More importantly, the predictive value of childhood sexual abuse increased after correcting for age, gender, PTSD diagnosis, and depressive symptoms, suggesting that younger age and more severe depressive symptoms were associated with more severe suicidal intrusions. Gender and PTSD diagnosis were not significantly associated with suicidal intrusions.

Similar to the findings from one previous study (Schultebraucks et al., 2020), we found that childhood maltreatment, particularly childhood sexual abuse, was associated with increases in the severity of suicidal intrusions. As sui-

cidal intrusions may function as a pathway through which suicidal ideation transitions into attempts (van Bentum et al., 2017), it is possible that more severe suicidal intrusions in survivors of childhood sexual abuse play a role in the increased risk for suicide. Importantly, the association between childhood sexual abuse and suicide is well-established, with a recent meta-analysis suggesting that individuals who have experienced childhood sexual abuse are 3 times more likely to attempt suicide than those who have not (Angelakis et al., 2019). Previous studies have demonstrated the substantial impact childhood sexual abuse can have and the long-term detrimental effects it can confer on survivors' physical (Kuzminskaite et al., 2021) and mental health (Hall & Hall, 2011). Childhood sexual abuse may occur repeatedly over a longer period, and research has shown that victims of recurrent sexual abuse are more likely to have comorbidities and acute psychiatric problems and to attempt suicide (Hu et al., 2018).

Although childhood maltreatment is a well-established risk factor for suicide attempts, in line with Schultebraucks et al. (2020), the present findings suggest that this may also be the case for suicidal intrusions. An explanation for the higher occurrence of suicidal intrusions in individuals who have experienced childhood maltreatment might be the neurobiological underpinnings of childhood maltreatment. Childhood maltreatment can impact brain development in areas such as the hippocampus, prefrontal cortex, and amygdala (Jaworska-Andryszewska & Rybakowski, 2019). For example, trauma exposure is associated with increased function in the amygdala (Zhu et al., 2019), a brain area associated with the encoding of emotional memories (Battaglini et al., 2016). In a recent study, increased amygdala activation was shown in healthy

participants who reported a higher level of intrusions following exposure to negative images (Battaglini et al., 2016). It is possible that increased amygdala activation as a result of childhood trauma may stimulate the onset and presence of suicidal intrusions. Furthermore, childhood maltreatment has been found to be related to impaired prefrontal inhibition (Kim et al., 2018), in turn preventing a suppression of amygdala activity. Less suppression of hippocampal activity by the prefrontal cortex has been associated with the worsening of inhibiting unwanted thoughts (Schmitz et al., 2017). Consequently, survivors of childhood abuse and neglect may be unable to inhibit suicidal intrusions.

In contrast to previous research (Angelakis et al., 2019), the present findings do not show physical abuse and emotional abuse to be significant predictors of suicidal intrusions. It is possible that physical abuse was underreported in our study. Physical abuse may vary in severity, and the instrument used to assess this form of trauma exposure may have picked up less severe forms of physical abuse. In line with this, approaches to rating the severity of physical abuse (i.e. degree of injury or harm) appear to differ across studies, whereas ratings of sexual abuse severity do not (Litrownik et al., 2005). It is possible that any experience of sexual abuse leads to an effect that cannot be further differentiated according to its severity, whereas recognizing and reporting physical abuse may be influenced by how it is defined and how the severity is rated (Litrownik et al., 2005). However, it is also possible that there is no association between childhood physical abuse and suicidal intrusions. For example, research by Kaplan et al. (1997) demonstrated no differences in the proportion of physically abused and non-physically abused adolescents who attempted suicide.

A strength of the present study was the relatively large, diverse, and difficult-to-reach sample of suicidal outpatients receiving treatment within various mental health institutions. However, there are also some limitations to consider. First, the study had a cross-sectional design, and, therefore, causal conclusions cannot be discussed. Furthermore, the instrument used to investigate suicidal intrusions (i.e., the SINAS) is currently being evaluated for its psychometric properties and has yet to be validated (van Bentum et al., 2017). In addition, the variety of psychiatric diagnoses in our sample was a limitation, as different psychiatric disorders have different associations with suicidality. This may affect the associations between childhood maltreatment and suicidal intrusions. Although the current sample was twice as large as the sample used in the study by Schultebrucks et al. (2020), our sample size of 149 participants is still limited, and much larger sample size would enhance researchers' power to detect associations. Finally, we did not examine the presence of traumatic intrusions in our sample of suicidal outpatients;

thus, we could not investigate whether intrusions related to childhood abuse were associated with suicidal intrusions. Likewise, we did not assess past suicide attempts, which may have been a contaminating factor for interpreting the results. Past suicide attempts have been found to be a primary risk factor of future suicidal behavior and may have an effect on the severity of suicidal intrusions (Bostwick et al., 2016).

The present findings show that childhood sexual abuse is associated with more severe suicidal intrusions. These findings suggest that in the treatment of suicidal intrusions and suicidality among clinically diverse populations, childhood sexual abuse should be identified and addressed with evidence-based treatments for PTSD, such as cognitive processing therapy (Resick et al., 2016). Prospective studies are needed to further examine the association between suicidal intrusions and their effects on suicidal ideation and behavior. Future longitudinal studies could explore the temporal relation between childhood maltreatment and the development of suicidal intrusions, which, in turn, may provide insights into the transition from suicidal ideation to suicide attempts. For example, functional magnetic resonance studies could broaden the field's understanding of the neurobiological underpinnings of suicidal intrusions. Furthermore, the associations between childhood maltreatment and suicidal intrusions should be explored in other clinical populations, particularly those that are vulnerable to or are currently experiencing intrusions (e.g., complex PTSD). Taken together, these findings could further optimize the treatment of suicide behaviors.


OPEN PRACTICES STATEMENT

The preregistration for the multicenter study can be accessed at <https://www.trialregister.nl/trial/7355>. The materials used in these studies are widely publicly available or can be requested via email to the lead author. Access to the data is limited to qualified researchers, requests for the data can be sent via email to the lead author at j.s.van.bentum@vu.nl.

ORCID

Jaël S. van Bentum  <https://orcid.org/0000-0003-2758-095X>

Marit Sijbrandij  <https://orcid.org/0000-0001-5430-9810>

Marcus J.H. Huibers  <https://orcid.org/0000-0002-9150-4049>

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