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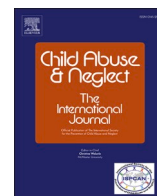
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Behind the silence of undisclosed trauma: A social network study on support and well-being in the context of childhood sexual abuse

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ABSTRACT

Background: Disclosing childhood sexual abuse (CSA) is often an emotionally complex process, and one in three individuals remains silent about their experiences. While ample research has established the protective role of social support in relation to PTSD symptoms, its function in the context of unshared traumatic experiences, such as undisclosed CSA, remains poorly understood. **Objective:** This study examined (1) differences in social support and trauma-related symptoms between adults who disclosed CSA and those who did not, and (2) whether perceived social support and social network characteristics serve as protective factors against PTSD, particularly among non-disclosers.

Methods: Participants were adults ($N = 327$) with a history of CSA, categorized as non-disclosers (no disclosure to anyone in their inner circle, $n = 96$), partial-disclosers (disclosed, but still a secret for some, $n = 114$), and full-disclosers (disclosed, no longer considered it a secret, $n = 117$). Participants completed a survey on PTSD symptoms, perceived support, and social network characteristics.

Results: The results of the MANOVAs indicate that non-disclosers reported more severe PTSD symptoms, lower perceived support, and smaller social networks than partial- and full-disclosers (all p -values < 0.01 ; multivariate $\eta^2 = 0.08$ – 0.09). Regression analyses showed that higher perceived support ($\beta = -0.40$, $p < 0.001$) and denser networks ($\beta = -0.16$, $p = 0.010$) were associated with fewer PTSD symptoms across all participants. Notably, perceived support was beneficial even among non-disclosers ($\beta = -0.34$, $p < 0.001$).

Conclusions: These findings underscore the importance of social support and cultivating strong social networks even for individuals who have not (yet) disclosed CSA.

1. Introduction

Childhood sexual abuse (CSA) is a common problem, with approximately one in five girls and one in 13 boys worldwide

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experiencing some form of sexual abuse before the age of 18 (Pereda et al., 2009). Despite its high prevalence, many individuals remain silent about these experiences, often delaying disclosure for years, with one in three never disclosing the abusive event(s) at all (Smith et al., 2000). Although previous research has examined the reasons and consequences of disclosure, the psychological effects of non-disclosure remain understudied. This study therefore examines differences in social support and trauma-related symptoms between adults who have not shared their experiences of CSA with others and adults who have. Furthermore, it investigates whether perceived social support and characteristics of one's social network serve as protective factors against posttraumatic stress disorder (PTSD), particularly among those who have not disclosed their experiences of sexual abuse. Findings will contribute to evidence-based recommendations for individuals living in the silence of undisclosed CSA.

1.1. Disclosure of sexual abuse

Deciding whether or not to disclose CSA to family and friends is often a difficult, emotion-laden process influenced by a variety of factors, including a person's feelings of self-blame, shame, fear of misinterpretations, and concerns about negative responses (e.g., Schönbucher et al., 2012). In addition, the connection with the perpetrator may play an important role in the decision to disclose. Disclosure is often delayed when the perpetrator is familiar, due to threats, manipulation, or concerns about the consequences of the disclosure for the victim, the perpetrator, or mutual connections (Dworkin et al., 2016; Hershkowitz et al., 2007; Schönbucher et al., 2012).

Negative expectations about (the consequences of) disclosure are not entirely unjustified, as a significant number of people face negative reactions following disclosure, ranging from disbelief and victim blaming to minimizing the severity of the event (Ahrens et al., 2010; Tener & Murphy, 2015). Such negative reactions have been referred to as secondary traumatization and can lead to further emotional problems, including PTSD and depression (e.g., McTavish et al., 2019; Schackner et al., 2021). Meanwhile, disclosing the experiences of sexual abuse can also be beneficial. Cross-sectional studies have found that individuals who have disclosed their experiences of sexual abuse (hereafter referred to as disclosers) report fewer symptoms of depression and PTSD than individuals who have not disclosed their experiences (hereafter referred to as non-disclosers; Ahrens et al., 2010). The more severe trauma-related symptoms among non-disclosers may be due to the fact that keeping the secret of sexual abuse can be very burdensome (Maas et al., 2019). Sharing the experience with another person may lead to feelings of relief and acknowledgment, and may elicit supportive responses (Staller & Nelson-Gardell, 2005). Furthermore, disclosing the abuse can reduce the risk of continued revictimization by the perpetrator (Staller & Nelson-Gardell, 2005; Tener & Murphy, 2015).

While the literature on disclosure decisions and responses to disclosure is extensive, only two studies (Ahrens et al., 2010; Carson et al., 2020) have directly compared the mental well-being of non-disclosers and disclosers of sexual abuse experiences. The limited research to date on the mental well-being of non-disclosers may partly be due to the inherent difficulty that individuals who have chosen not to disclose their experiences to anyone are unlikely to share their experiences of sexual abuse—even anonymously—with researchers. The comparative studies have yielded inconclusive results. Ahrens et al. (2010) found that disclosers reported lower levels of PTSD and depression symptoms than those who did not disclose, whereas Carson et al. (2020) found no significant differences in symptomatology between the two groups. Both studies defined disclosure as having told at least one person. However, telling a single person may not necessarily lead to psychological relief, especially if the abuse is still perceived as a personal secret. Thus, the psychological impact of disclosure may depend not only on whether the abuse has been disclosed, but also on whether the experience continues to be carried as a secret. To incorporate these two key aspects in our study design, we categorize participants into three groups: non-disclosers (who did not tell any friends or family members), partial-disclosers (who told some but still regarded the abuse as a secret), and full-disclosers (who told some and no longer considered it a secret). This classification allows for a more nuanced examination of the effects of sharing (partial- and full-disclosers) versus not sharing (non-disclosers), and keeping a secret (non- and partial-disclosers) or not (full-disclosers).

1.2. Social support

Social support from a partner, family and friends is crucial following a traumatic event. Individuals who experience higher levels of social support (e.g., the perception that warmth, help, and care from family and friends is available) often have less severe symptoms of PTSD (Fares-Otero et al., 2024; Wang et al., 2021). While many studies refer to *social support following trauma*, they typically assess general perceived support rather than support that is explicitly linked to the traumatic experience. As a result, it remains unclear whether the reported support reflects trauma-related support or a broader sense of being supported. This distinction is particularly relevant in the context of non-disclosure, as it is unclear whether individuals who have not disclosed their trauma can still experience a general sense of social support, and whether this type of support still acts as a buffer against PTSD. This raises a critical question: do the positive effects of social support on PTSD symptoms arise from a general perception of the availability of support, or are they contingent upon the disclosure of trauma and the reception of supportive responses? Answers to this question are crucial for clinical practice, as they will help to clarify whether psychoeducation and interventions should focus on enhancing overall social support or rather encourage disclosure.

In addition to perceived social support, previous research has shown that more quantitative, structural aspects of social support, such as the number of close family members and friends and the strength of these connections, are also associated with lower levels of trauma-related symptoms (Bryant et al., 2017; Dworkin et al., 2016; Jaffe et al., 2022; Yang et al., 2023). Although research in the context of CSA is limited, studies on other types of trauma suggested that a larger network, more supportive relationships and a more interconnected network were accompanied by lower levels of trauma-related symptoms (Bryant et al., 2017; Yang et al., 2023). It is not

yet known how these structural aspects of support relate to PTSD symptoms in the context of CSA, and whether these structural aspects of social support differ between non-disclosers and disclosers.

1.3. Perpetrator entanglement in the social network

In addition to relationships with family and friends, the dynamic between victim and perpetrator of sexual abuse can also influence the victim's trauma-related symptoms. Research has shown that individuals who were abused by a familiar person tend to experience more severe PTSD symptoms compared to those who were abused by strangers (Lawyer et al., 2006; Tarzia et al., 2018). Previous research on the impact of the victim-perpetrator relationship on trauma-related symptoms has primarily focused on the direct relationship between the victim and the perpetrator, overlooking the broader context of the social network surrounding them. It may well be the case that if the perpetrator is firmly embedded in the victim's social network, the person will experience more severe symptoms compared to individuals for whom the perpetrator is less embedded in their network. A perpetrator with close relationships to the individual and their social network often triggers feelings of betrayal (Edwards et al., 2012), or fear of isolation or disbelief by others who know the perpetrator (Schönbucher et al., 2012), both of which can have a negative impact on the individuals' social interactions and exacerbate mental health problems, including depression and anxiety. To further understand how social support and the victim's social network, including possible entanglement of the perpetrator, are associated with trauma-related symptoms, it is essential to examine the broader social network of both non-disclosers and disclosers of CSA experiences.

1.4. Current study

The first aim of our study is to investigate whether individuals who experienced CSA and did not disclose their experience(s) within their social network differ in trauma-related symptoms (i.e., PTSD, depression and anxiety), perceived social support, and their social network structure (i.e., network size, network density, average closeness and perpetrator familiarity) compared to those who disclosed to friends and family. Given that previous studies show mixed results, we do not have clear hypotheses regarding the group differences. Individuals may benefit from disclosing their experience(s) because they no longer have to live with a secret anymore and may receive more support and therefore experience fewer trauma-related symptoms (Ahrens et al., 2010; Staller & Nelson-Gardell, 2005; Tener & Murphy, 2015). On the other hand, negative reactions to the disclosure may lead to lower levels of experienced support and as a result higher levels of trauma-related symptoms (McTavish et al., 2019). Regarding the social network, it is expected that non-disclosers are more likely to have a familiar perpetrator and tend to have more people in their network with strong ties to the perpetrator (Hershkovitz et al., 2007).

The second aim is to investigate how perceived social support and social network aspects (including the perpetrator's entanglement) are associated with the severity of trauma-related symptoms (i.e., PTSD, depression and anxiety) in individuals who have experienced CSA, and to explore how these associations manifest across the three disclosure groups. While higher levels of perceived social support are generally expected to be associated with less severe trauma-related symptoms (Aydin et al., 2016; Dworkin et al., 2016), it remains unclear whether social support is as effective when the personal network is unaware of the abuse. Moreover, it is expected that, in general, a larger network size, a greater average closeness to family and friends within the network, and a higher network density are associated with less severe trauma-related symptoms (Bryant et al., 2017; Jaffe et al., 2022; Yang et al., 2023). Furthermore, in line with previous studies (Lawyer et al., 2006; Tarzia et al., 2018), we expect PTSD symptoms to be more severe when the perpetrator is someone familiar to the victim and more deeply embedded in the victim's network. However, to our knowledge, few studies have focused on the role of the perpetrator in the individuals' social network, so this aim is mainly exploratory.

2. Methods

2.1. Participants

Participants were recruited via social media (e.g., LinkedIn, Facebook). Inclusion criteria were being 16 years or older, and reporting to have experienced CSA (i.e., before the age of 18 years). Participants were classified as *non-disclosers* if they had never shared their CSA experiences with close family members and/or friends. Those who had disclosed their CSA experiences were categorized as *disclosers* and further divided into *partial-* and *full-disclosers* based on their responses to the question: "Are there people in your inner circle whom you do not wish to tell about the abuse?" Those who answered "no" were categorized as *full-disclosers*. If they answered "yes", they were asked a follow-up question: "Do you consider the abuse to be a secret?" Participants who responded "no" were also classified as *full-disclosers*, while those who responded "yes" were categorized as *partial-disclosers*.

The final sample consisted of $n = 96$ non-disclosers (mean age = 39.2 years, $SD = 14.49$, 91.7 % women) and two control groups consisting of $n = 114$ partial-disclosers (mean age = 41.4 years, $SD = 11.65$, 97.4 % women), and $n = 117$ full-disclosers (mean age = 42.9 years, $SD = 12.19$, 94.0 % women). Participants in the control groups were matched with the non-disclosure group in terms of demographics (age, gender, ethnicity, and education level) using a weighted probabilistic selection method. As a result, seven full-disclosers needed to be excluded to ensure matching in terms of age and gender between non- and full-disclosers. For details on the demographics, see Table S1 in the Supplementary Materials.

2.2. Measures

2.2.1. PTSD symptoms

The Dutch version of the PTSD Checklist for DSM-5 (PCL-5; Boeschoten et al., 2014) was used to assess posttraumatic stress symptoms. Participants were instructed to answer the PCL-5 with their most significant CSA experience in mind. The PCL-5 consists of 20 items based on the four symptom clusters as described in the DSM-5. Items must be answered on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The total severity score is the sum score of all items (range 0–80). The PCL-5 has good convergent and discriminant validity (Blevins et al., 2015) and showed an excellent internal consistency coefficient in the current study (Cronbach's $\alpha = 0.95$).

2.2.2. Anxiety and depression

Participants completed the Dutch version of the Patient Health Questionnaire (PHQ-4; Kroenke et al., 2009). The PHQ-4 is a screening tool for anxiety and depression and consists of 4 items that have to be rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (almost every day). The total score can be obtained by summing ratings on all four items. The factorial and criterion validity of the PHQ-4 is good (Kroenke et al., 2009) and this was also true for the internal consistency of the scale in the current study (Cronbach's $\alpha = 0.86$).

2.2.3. Perceived social support

To assess perceived social support, the Multidimensional Scale of Perceived Social Support (MSPSS) was used (Zimet et al., 1988). The MSPSS consists of 12 items measuring social support by friends, family members, and a significant other. Items can be answered on a 7-point Likert scale ranging from 0 (very strongly disagree) to 7 (very strongly agree). The MSPSS has good construct validity (Brugnoli et al., 2022) and demonstrated satisfactory internal consistency (Cronbach's $\alpha = 0.89$).

2.2.4. Structural social network

Participants listed up to 10 people (“alters”) with whom they had discussed important matters in the past 6 months, using nicknames for confidentiality. For each alter, gender, relationship type (e.g., partner, parent, sibling, friend), perceived closeness on a 4-point scale (1 = not very close to 4 = very close), and frequency of communication using a 5-point scale (1 = daily, 2 = weekly, 3 = monthly, 4 = yearly, 5 = less than yearly) were assessed. If 10 alters were listed, participants could indicate how many they wanted to list (capped at 15) to estimate *network size*. *Average closeness* was computed across alters. Alter-alter ties were rated 0 (no connection between the alters), 1 (alter A and B know each other), or 2 (alter A and B discuss important matters), assuming reciprocity; *network density* was calculated for participants with ≥ 3 alters. Ties between alters and the perpetrator were scored similarly (0–2), and the victim-perpetrator tie was scored from 0 (stranger), 1 (familiar), or 2 (familiar and ongoing contact). The *perpetrator familiarity index* (PFI) summed all ties involving the perpetrator, scaled by the maximum possible score based on network size. Fig. 1 illustrates two networks constructed from the data of two participants.

2.2.5. Sexual abuse

Several characteristics of the CSA were assessed through self-report, including frequency, age of the onset, duration, and the type of perpetrator. Frequency was assessed with the question “Have you experienced sexual abuse one or multiple times?” (response options: once, multiple times), followed by “If repeated, was the abuse always committed by the same perpetrator or by different perpetrators?” (response options: prolonged abuse by the same perpetrator, multiple separate incidents by different perpetrators, both). Age of onset was assessed with the question “How old were you when the abuse first occurred?”. Duration was assessed in case of repeated abuse with “How old were you when the abuse stopped?”, and calculated by the age at the end minus age of onset. The relationship with the perpetrator of the most significant CSA experience was assessed with the questions “Did you know the perpetrator?” (response options: yes, no), and if yes, “What was your relationship with the perpetrator?” (response options: biological parent, foster parent, step parent, adoption parent, sibling, other family member, partner, friend, colleague, acquaintance, other namely..).

2.2.6. Loneliness

One item on the survey assessed feelings of loneliness: “How lonely do you feel?” Responses were given on a 10-point scale, ranging from 1 (“not lonely at all”) to 10 (“very lonely”).

2.2.7. Traumatic childhood events

The Dutch version of the Child Trauma Questionnaire (CTQ; Bernstein et al., 2003) was used to assess other traumatic childhood experiences. In the current study, we included the subscales of emotional abuse, physical abuse, and emotional neglect. Sexual abuse was assessed separately to obtain more detailed information on factors such as frequency and onset. Physical neglect was excluded in the current study due to its low validity and reliability in prior studies (e.g., Spinhoven et al., 2014). The emotional abuse, physical abuse, and emotional neglect scales consist of a total of 15 items, which are all scored on a 5-point Likert scale ranging from 1 (never true) to 5 (very often true). The three scales of the CTQ show good convergent and structural validity (Thombs et al., 2009). The internal reliability in the current study was good (Cronbach's α values for emotional abuse, physical abuse, and emotional neglect were 0.88, 0.88, and 0.90, respectively).

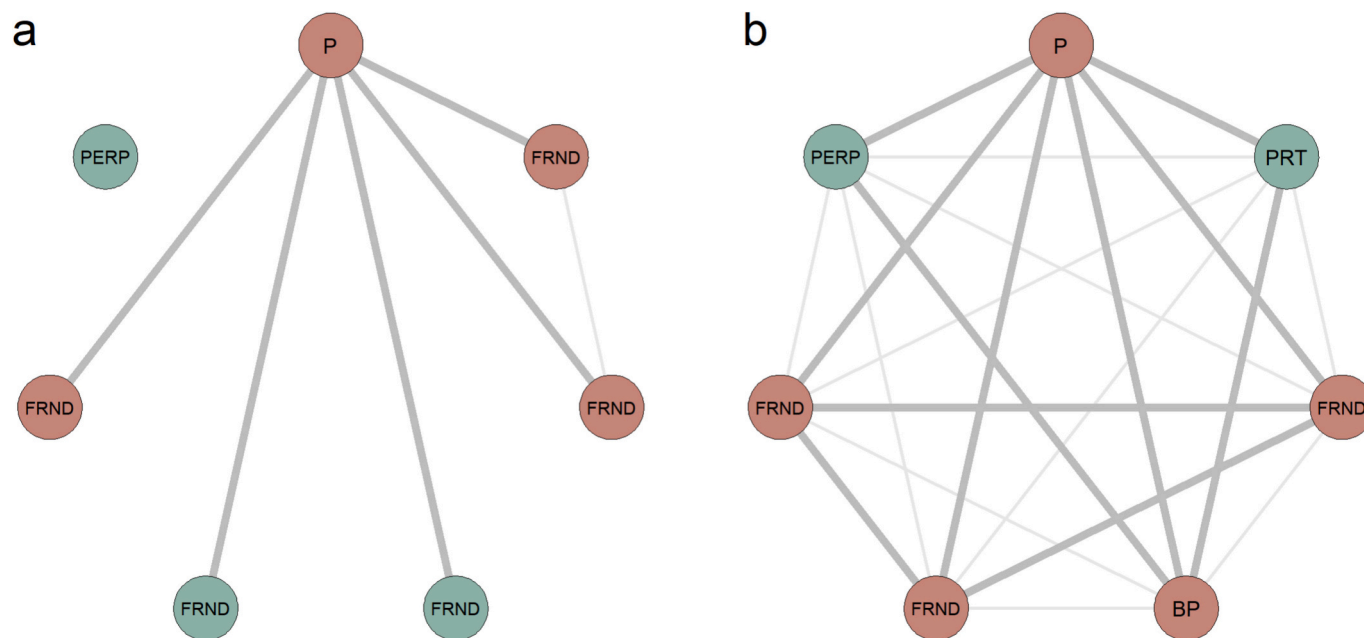


Fig. 1. Illustration of two social networks based on the data of two participants (P). The network of participant a consists of 5 friends (FRND), two of whom know each other, while the others are unrelated. None of the members have ties to the perpetrator (PERP). This network has a low density (0.05) and perpetrator familiarity index (PFI; 0.00). In contrast, participant b's network includes a partner (PRT), biological parent (BP), and three friends, all interconnected and knowing the perpetrator. This network has a higher density (0.70) and PFI (0.67). Green nodes represent male network members, while red nodes represent female members. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

2.3. Procedure

Participants were recruited via social media. If interested, they were instructed to click on a hyperlink, which automatically guided them to the study information, followed by an informed consent form. If they gave their consent, they were directed to the survey. The survey was preceded by a series of questions to verify the inclusion criteria. Those who did not meet inclusion criteria received an explanation and were exited from the survey. If the criteria were met, the survey began and took approximately 30 min to complete. All data were processed and analyzed anonymously to ensure participant privacy. Participants received non-monetary compensation through access to an exclusive webinar covering the study results, background information, and a questions-and-answers session, which they could attend anonymously.

This study was approved by the Leiden University Psychology Research Ethics Committee, The Netherlands (reference number: 2024-07-29- B.M.Elzinga-V1–5594) and preregistered on the Open Science Framework (OSF) prior to the data collection (<https://osf.io/u93p5/>). The syntax reproducing the results can be accessed on OSF, and data will be provided upon reasonable request.

2.4. Statistical analyses

Data preparation and analyses were conducted in R (Version 4.4.1) (R Core Team, 2024). Descriptive statistics (means and standard deviations) were computed for each group (full-, partial-, and non-disclosers), and variable distributions were inspected for all variables related to symptoms and social support. To address non-normality, network density and PFI were log-transformed, and average closeness was square-transformed. Group differences on sample characteristics (e.g., frequency of the abuse, type of perpetrator, relationship categories, feelings of loneliness) were examined using multiple analyses of variance (ANOVA), chi-square tests, and Fisher's exact tests.

Subsequently, to investigate the first aim, i.e., whether non-disclosers differed significantly from the control groups of partial- and full-disclosers with regard to PTSD and anxiety/depression symptoms (PCL-5 and PHQ-4) and social support (MSPSS and structural support) two multivariate analyses of variance (MANOVAs) were conducted. Initially, only disclosure to a professional was preregistered as covariate. However, to better account for factors that may influence trauma-related symptomatology, additional covariates were included: perpetrator familiarity, frequency of abuse (single versus repeated), and the presence of other childhood trauma (CTQ). These variables were included in the MANOVA with trauma-related symptomatology (PCL-5 and PHQ-4) as the dependent variable.

Furthermore, to address the second aim, multiple hierarchical regression analyses were conducted to examine the extent to which social support (perceived and structural) was related to trauma-related symptoms. The outcome variables were PTSD symptoms (PCL-5) and anxiety/depression symptoms (PHQ-4). In the first step, perceived social support (MSPSS) was entered as independent variable. Although not preregistered, this initial model was tested to check whether perceived social support was associated with trauma-related symptoms, a relationship that has already been demonstrated in previous research, before adding structural indices as independent variables. In the second step, network size, network density, average closeness, and PFI were added as independent variables. Third, the variable of 'disclosure to a professional' was added as a covariate to the model in order to control for its potential influence on trauma-related symptoms. To test whether certain associations were consistent across non-disclosers and the control groups, the

Table 1
Descriptive statistics of sexual abuse, childhood trauma, symptoms and social support.

	Total group <i>N</i> = 327	Non-disclosers <i>n</i> = 96	Partial-disclosers <i>n</i> = 114	Full-disclosers <i>n</i> = 117
	<i>n</i> (%) / <i>M</i> (<i>SD</i>)	<i>n</i> (%) / <i>M</i> (<i>SD</i>)	<i>n</i> (%) / <i>M</i> (<i>SD</i>)	<i>n</i> (%) / <i>M</i> (<i>SD</i>)
Age of onset	9.03 (4.39)	9.76 (4.52) ^a	8.70 (4.24) ^a	8.82 (4.24) ^a
Multiple instances (vs. single)	296 (90.5 %)	87 (90.6 %) ^a	106 (93.0 %) ^a	103 (88.0 %) ^a
Familiar perpetrator (vs. stranger)	299 (91.4 %)	82 (85.4 %) ^a	110 (96.5 %) ^b	107 (91.5 %) ^{a,b}
Childhood trauma				
Emotional abuse	15.11 (5.69)	16.35 (5.50) ^a	15.04 (5.53) ^{a,b}	14.15 (5.85) ^b
Emotional neglect	17.69 (4.66)	18.52 (4.30) ^a	17.77 (4.39) ^{a,b}	16.91 (5.09) ^b
Physical abuse	9.06 (4.95)	10.05 (5.28) ^a	8.74 (4.63) ^a	8.56 (4.89) ^a
Symptoms				
PTSD	35.86 (18.90)	45.44 (17.20) ^a	37.70 (17.64) ^b	26.21 (16.88) ^c
Anxiety/depression	5.11 (3.41)	6.35 (3.44) ^a	5.36 (3.26) ^a	3.84 (3.10) ^b
Loneliness	6.18 (2.52)	6.90 (2.39) ^a	6.20 (2.40) ^{a,b}	5.58 (2.61) ^b
Social support				
Perceived social support	53.95 (14.34)	45.36 (13.10) ^a	55.56 (13.05) ^b	59.42 (13.34) ^b
Network size	5.88 (3.28)	4.68 (2.61) ^a	6.40 (3.49) ^b	6.37 (3.33) ^b
Network density	0.35 (0.21)	0.36 (0.26) ^{a,b}	0.31 (0.19) ^a	0.38 (0.20) ^b
Average closeness	2.88 (0.66)	2.67 (0.80) ^a	2.89 (0.65) ^a	3.04 (0.48) ^a
PFI	0.22 (0.17)	0.23 (0.22) ^a	0.22 (0.15) ^a	0.21 (0.15) ^a

Note: Childhood trauma was assessed using the Childhood Trauma Questionnaire (CTQ). PTSD symptoms were assessed using the PTSD Checklist for DSM-5 (PCL-5). Anxiety/depression symptoms were measured with the Patient Health Questionnaire-4 (PHQ-4). Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS). PFI = Perpetrator Familiarity Index. Groups not sharing similar superscript letters differ significantly from each other.

analyses were also conducted separately in all three groups (full, partial-, and non-disclosers). The Benjamini-Hochberg method was used with a false discovery rate of 0.05 to correct for multiple testing (Benjamini & Hochberg, 1995). In addition to the preregistered analyses, we explored whether the results of the regression analyses were robust after controlling for other forms of childhood trauma (CTQ). The results of these analyses are reported in the Supplementary Materials (Section S1 and Table S2). Finally, as preregistered, moderation analyses were conducted to examine whether perpetrator familiarity (PFI) moderated the associations between structural social support and trauma-related symptoms. Interaction terms (PFI $\times$ network size, density, and closeness) were included in the full-sample model. Results of this moderation analysis are available in the Supplementary Materials (Section S2).

Missing data. Missing data were minimized by using forced response options for each item. However, participants could terminate the survey before it was completed. As shown in Fig. S1 in the Supplementary Materials, 195 participants were excluded due to early survey termination and 99 due to inconsistent disclosure reporting. From our final analytic sample ($N = 327$), all data was complete.

3. Results

3.1. Sample characteristics

The descriptive statistics of the sexual abuse characteristics and other traumatic events (i.e., CTQ) are presented in Table 1, along with comparisons between the three disclosure groups. As shown in Table 1, non-disclosers did not significantly differ from the control groups with regard to age of the onset of sexual abuse [$F(2,324) = 1.47, p = 0.233$], or the frequency of the abuse (Fisher's Exact Test: $p = 0.429$). Among non-disclosers who reported multiple instances of abuse, 38.5 % ($n = 37$) reported abuse by a single perpetrator (e.g., prolonged abuse by an uncle), 10.4 % ($n = 10$) experienced multiple separate incidents of abuse by different perpetrators (e.g., being raped on separate occasions by unrelated perpetrators), and 41.7 % ($n = 40$) experienced a combination of the two above. Compared to non-disclosers, the control groups more often reported prolonged abuse by one perpetrator [$\chi^2(4327) = 12.10, p = 0.017$; partial-disclosers: 53.5 %, full-disclosers: 59.0 %]. Additionally, non-disclosers were less likely to report a familiar perpetrator compared to partial-disclosers (Fisher's Exact Test: $p = 0.017$). Regarding childhood traumatic experiences significant differences were observed, with non-disclosers reporting more severe levels of emotional abuse [$F(2,324) = 4.06, p = 0.018$] and emotional neglect [$F(2,324) = 4.21, p = 0.041$] than full-disclosers. Non-disclosers also reported more feelings of loneliness compared to full-disclosers [$F(2,324) = 7.45, p < 0.001$].

Furthermore, non-disclosers were less likely to list a partner in their social network compared to partial- and full-disclosers (36.5 % vs. 67.5 % and 72.6 %, respectively), and they listed friends less frequently than partial- and full-disclosers (75.0 % vs. 89.5 % and 90.6 %, respectively), see Table S3 in the Supplementary Materials. No significant differences were found between non-disclosers and the control groups in the frequency of listing family members, healthcare professionals, or others in their social network.

3.2. Differences between disclosure groups in trauma-related symptoms and social support

Descriptive statistics of trauma-related symptoms and social network indices for the total sample and the subgroups can also be found in Table 1. Using the commonly accepted cut-off score of 33 for 'probable PTSD', the PCL-5 scores showed that both non- and partial-disclosers, on average, scored above the threshold for probable PTSD (Forkus et al., 2023), whereas the group of full-disclosers scored below this cut-off score. The mean scores on the PHQ-4 indicated that non-disclosers experienced moderate symptoms (6–8), while both partial- and full-disclosers indicated experiencing mild symptoms (3–5; Kroenke et al., 2009). The level of perceived social support can be considered as medium (36–60) for all three groups (Zimet et al., 1988). Correlations among the main variables can be found in the Supplementary Materials (Table S4).

The first MANOVA was conducted to investigate differences between non-disclosers and the control groups (partial- and full-disclosers) on PTSD symptoms (PCL-5) and anxiety and depression symptoms (PHQ-4). In the full model, a significant difference was found between the three groups, $F(2,324) = 16.20, p < 0.001$, with a medium effect size of $\eta^2 = 0.09$. The three groups differed significantly on both PTSD symptoms [$F(2,324) = 33.76, p < 0.001$], and anxiety and depression symptoms [$F(2,324) = 16.26, p < 0.001$]. Post-hoc analyses indicated that all groups differed significantly from one another on PTSD symptoms, with the most severe symptoms in the non-disclosure group and the least severe in the full-disclosure group (see also Fig. 2a). Furthermore, non-disclosers reported significantly higher levels of anxiety and depression symptoms compared to full-disclosers, but did not differ from partial-disclosers. After controlling for disclosure to a professional, perpetrator familiarity, type of abuse (single versus repeated) and childhood trauma (CTQ), there remained a significant difference between disclosure groups with regard to PTSD and anxiety and depression symptoms, $F(4,472) = 19.08, p < 0.001, \eta^2 = 0.08$.

The second MANOVA was conducted to investigate differences between non-, partial- and full-disclosers on perceived social support (MSPSS) and structural support indices (network size, network density, average closeness, and PFI). A significant difference was found for the full model, $F(2,287) = 5.58, p < 0.001, \eta^2 = 0.09$. The groups differed significantly on perceived social support [$F(2,287) = 23.47, p < 0.001$], network size [$F(2,287) = 5.94, p = 0.002$], network density [$F(2,287) = 3.08, p = 0.047$], but not on average closeness [$F(2,287) = 2.99, p = 0.051$], or PFI [$F(2,287) = 0.16, p = 0.849$]. Post-hoc analyses revealed that non-disclosers reported significantly lower perceived social support and a lower network size compared to partial- and full-disclosers. Network density was significantly lower for partial-disclosers compared to full-disclosers.

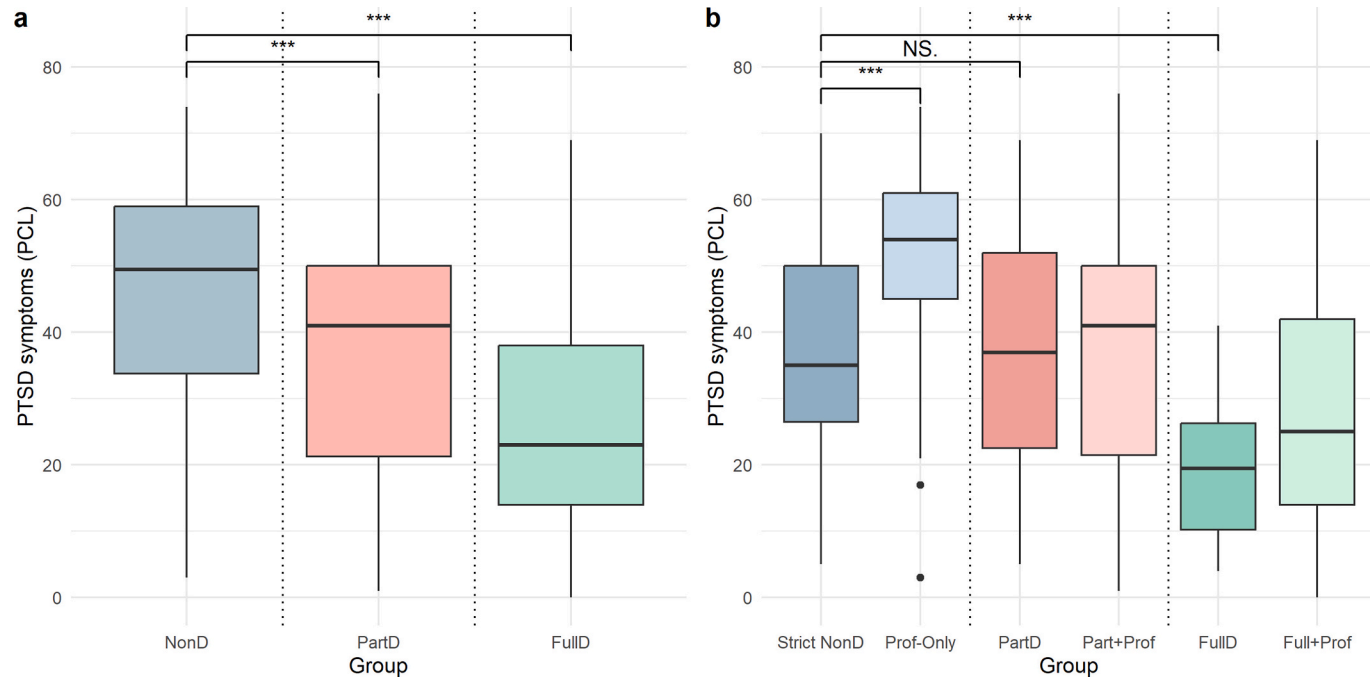


Fig. 2. Comparison of PTSD symptoms across different groups. Figure a represents the original comparison between non-disclosers ('NonD'), partial- ('PartD') and full-disclosers ('FullD'). Figure b represents a comparison in which each group is split into two subgroups: those who disclosed to a professional and those who did not. Non-disclosers are split into participants who told no one about the abuse ('Strict NonD', $n = 39$) versus those who told a professional only ('Prof-Only', $n = 57$). Partial- and full-disclosers are divided into those who disclosed to their inner circle only ('PartD', $n = 15$, and 'FullD', $n = 20$) and those who also disclosed to a professional ('Part+Prof', $n = 99$, and 'Full+Prof', $n = 97$). Only comparisons involving the (strict) non-disclosure group are presented. *** $p < 0.001$. NS. = Not significant.

3.3. Exploratory post-hoc analyses (not preregistered)

The non-disclosure group consisted of individuals who disclosed to nobody (strict non-disclosers, $n = 39$) and individuals who disclosed only to a professional (professional-only disclosers, $n = 57$). Similarly, the control groups also consisted of individuals who disclosed only within their inner circle and those who also disclosed to a professional. An additional ANOVA compared strict non-disclosers with professional-only disclosers, as well as with control groups who did not disclose to a professional (Fig. 2b). Results showed that strict non-disclosers reported significantly less severe PTSD ($M = 36.46$, $SD = 17.45$) and anxiety/depression symptoms ($M = 4.90$, $SD = 3.66$) than professional-only disclosers (PTSD: $M = 51.58$, $SD = 14.18$; anxiety/depression: $M = 7.35$, $SD = 2.91$). Compared to full-disclosers who did not disclose to a professional, strict non-disclosers reported more severe PTSD but similar anxiety/depression (PTSD: $M = 20.05$, $SD = 11.66$; anxiety/depression: $M = 3.14$, $SD = 2.52$). No significant differences were found between strict non-disclosers and partial-disclosers who did not disclose to a professional (PTSD: $M = 36.53$, $SD = 20.45$; anxiety and depression: $M = 5.40$, $SD = 3.52$).

Regarding perceived social support, strict non-disclosers ($M = 48.38$, $SD = 15.26$) did not differ from professional-only disclosers ($M = 42.30$, $SD = 11.94$), but they reported lower levels of perceived social support than partial- ($M = 60.80$, $SD = 14.19$) and full-disclosers ($M = 59.60$, $SD = 11.31$) who did not disclose to a professional.

3.4. Association between social support and trauma-related symptoms

To investigate the relation between social support (perceived and structural) and trauma-related symptoms in the full sample, a hierarchical multiple regression analysis was conducted. On the first step, we tested whether perceived social support was related to PTSD symptoms [$F(1,325) = 84.60$, $p < 0.001$, $R^2_{adjusted} = 0.204$]. The main effect of perceived social support was significant ($b = -0.60$, $\beta = -0.45$, $p < 0.001$), indicating that higher levels of perceived social support were associated with less severe PTSD symptoms. On the second step, network size, average closeness, network density and PFI were added to the model to examine whether these structural network indices explained variance in PTSD symptoms beyond perceived social support (see Table 2, Model 1b). In addition to perceived social support, greater network density and lower PFI were associated with less severe PTSD symptoms, indicating that individuals with more interconnected networks and fewer connections with the perpetrator report less severe PTSD symptoms. Network size and average closeness were not significantly associated with PTSD symptoms. When controlling for disclosure to a professional (on step 3) the main effects of perceived social support, network density and PFI remained significant (Table 2, Model 1c).

In a separate regression model, we tested whether perceived social support was associated with anxiety/depression symptoms. Higher levels of perceived social support were associated with lower levels of anxiety/depression symptoms ($b = -0.10$, $\beta = -0.44$, $p < 0.001$). When network size, average closeness, network density and PFI were added to the model, perceived social support still accounted for a significant proportion of the variance in anxiety/depression symptom scores, but none of the structural support indices made a statistically significant contribution (for test statistics see Supplementary Materials Table S5).

3.5. Association between social support and trauma-related symptoms in the different groups

To examine associations between social support (perceived and structural) and PTSD symptoms within each disclosure group, separate hierarchical multiple regression models were tested. First, results indicated that higher levels of perceived social support were consistently associated with lower levels of PTSD symptoms across all three groups, with similar, but slightly stronger effects in

Table 2

Results of the multiple regression analysis examining the relationship between PTSD, social support, and network variables in the total sample.

Independent variables	Estimate	SE	β	p	p -adj
Model 1b					
Intercept	63.94	6.11		<0.001	<0.001
Perceived social support	-0.57	0.10	-0.40	<0.001	<0.001
Network size	-0.01	0.36	0.00	0.968	0.968
Average closeness	1.58	2.21	0.04	0.474	0.593
Network density	-14.29	4.99	-0.16	0.004	0.010
PFI	16.13	6.22	0.14	0.009	0.015
Model 1c					
Intercept	60.38	6.36		<0.001	<0.001
Perceived social support	-0.56	0.10	-0.39	<0.001	<0.001
Network size	-0.16	0.37	-0.03	0.673	0.673
Average closeness	1.54	2.20	0.04	0.483	0.580
Network density	-13.68	4.98	-0.16	0.006	0.018
PFI	15.41	6.20	0.14	0.014	0.028
Disclosure to professional	4.75	2.47	0.10	0.056	0.084

Note: Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS). PFI = Perpetrator Familiarity Index. p -adj = significance level adjusted by the Benjamini-Hochberg procedure. Bold indicates a p -value < 0.05 . Model 1b: $F(5,284) = 13.65$, $p < 0.001$, $R^2_{adjusted} = 0.180$. Model 1c: $F(6,283) = 12.10$, $p < 0.001$, $R^2_{adjusted} = 0.187$.

disclosers (non-disclosers: $b = -0.44$, $\beta = -0.34$, $p < 0.001$; partial-disclosers: $b = -0.48$, $\beta = -0.36$, $p < 0.001$; and full-disclosers: $b = -0.48$, $\beta = -0.38$, $p < 0.001$, see Fig. 3). Second, network size, average closeness, network density and PFI were added to the model, resulting in a non-significant model in the non-disclosure group, but significant models in the control groups (model 1b, Table 3). However, neither perceived social support nor the structural support indices were significantly associated with PTSD symptoms in non- and partial-disclosers. In the full-disclosure group, the effect of perceived social support was initially significant, but became non-significant after disclosure to a professional was included in the model (model 1c, Table 3).

4. Discussion

In this study we examined differences in trauma-related symptoms and social support between individuals who did not disclose their CSA experiences to people in their social network (i.e., non-disclosers) and those who did share their CSA (i.e., partial- or full-disclosers). Non-disclosers displayed more severe PTSD and anxiety/depression symptoms, reported lower levels of perceived social support, and had smaller social networks than partial- and full-disclosers. Furthermore, we examined how perceived social support and the social network - including relations with the perpetrator - were associated with trauma-related symptoms, and specifically how these associations manifested in the three groups (non-, partial-, full-disclosers). Higher levels of perceived social support were consistently associated with less severe PTSD and anxiety/depression symptoms, even among individuals who had not disclosed their CSA to friends or family. Additionally, individuals with CSA experiences had more severe levels of PTSD when they had a less connected social network or when the perpetrator was deeply integrated within their network.

4.1. Non-disclosers as a distinct group with lower support and more trauma-related symptoms

Our first key finding was that non-disclosers exhibited higher levels of PTSD and anxiety/depression symptoms, and lower levels of perceived social support compared to disclosers. Notably, the difference in PTSD symptom severity between non- and full-disclosers was large (Cohen's $d = 1.13$). Even though one cannot directly compare this group difference with treatment effects, it is remarkable that the difference in PTSD severity is substantial and for example larger than typical effect sizes reported for psychotherapy in this population (Hedges's $g = 0.72$ – 0.77 ; Taylor & Harvey, 2010). Our findings align with previous research demonstrating worse psychological outcomes among non-disclosers (e.g., Ahrens et al., 2010). Exploratory analyses within the non-disclosure group revealed that individuals who disclosed to a professional exhibited more severe PTSD symptoms compared to individuals who did not tell anyone, not even a professional (i.e., 'strict non-disclosers'). Additionally, strict non-disclosers reported comparable PTSD symptom severity to partial-disclosers, who shared their experience with some of their inner circle while keeping it secret from others. Both strict non-disclosers and partial-disclosers had mean scores above the cut-off for probable PTSD ($PCL > 33$; Forkus et al., 2023). These findings suggest that disclosure itself is not necessarily associated with fewer symptoms, at least not among individuals who keep it secret from some members of their inner circle. Thus, it may be the absence of a secret among the full-disclosers, rather than the disclosure itself, that is associated with lower symptom severity following CSA. Although to our knowledge, the specific impact of secret-keeping of CSA on PTSD symptoms has not been investigated, prior studies have demonstrated that secrecy is generally associated with poorer mental well-being, including increased negative mood and loneliness (Frijns & Finkenauer, 2009).

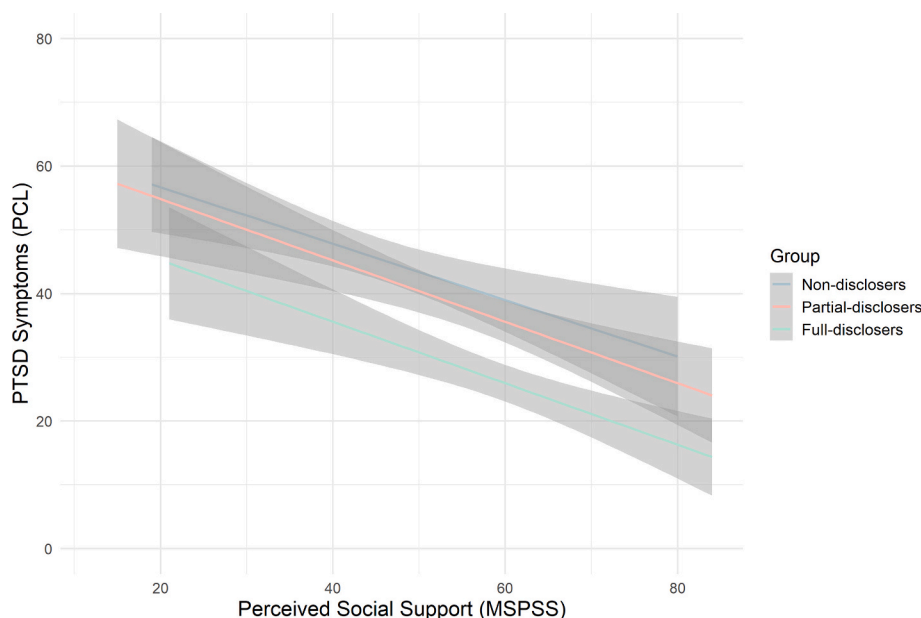


Fig. 3. Relationship between perceived social support and PTSD symptoms in non-, partial-, and full-disclosers.

Table 3

Results of the regression analysis examining the relationship between PTSD, social support, and network variables, conducted separately for the three subsamples.

	Non-disclosers		Partial-disclosers		Full-disclosers	
	β	<i>p</i> -adj	β	<i>p</i> -adj	β	<i>p</i> -adj
Model 1b						
Intercept		<0.001		<0.001		<0.001
Perceived social support	-0.31	0.160	-0.27	0.130	-0.32	0.025
Network size	0.05	0.751	0.06	0.594	-0.12	0.283
Average closeness	-0.04	0.751	0.16	0.227	-0.04	0.700
Network density	-0.13	0.487	-0.20	0.140	-0.15	0.220
PFI	10.59	0.265	0.07	0.594	0.16	0.220
Model 1c						
Intercept		<0.001		<0.001		<0.001
Perceived social support	-0.14	0.465	-0.30	0.102	-0.29	0.054
Network size	-0.14	0.465	0.09	0.482	-0.13	0.205
Average closeness	-0.07	0.690	0.15	0.322	-0.07	0.493
Network density	-0.03	0.780	-0.20	0.177	-0.16	0.112
PFI	0.12	0.465	0.07	0.483	0.14	0.192
Disclosure to professional	0.50	0.006	-0.10	0.483	0.17	0.112

Note: Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS). PFI = Perpetrator Familiarity Index. *p*-adj = significance level adjusted by the Benjamini-Hochberg procedure. Bold indicates $p < 0.05$. Model 1b: Non-disclosers $F(5,72) = 2.18$, $p = 0.066$; partial-disclosers $F(5,98) = 2.55$, $p = 0.033$; full-disclosers $F(5,102) = 4.84$, $p < 0.001$. Model 1c: Non-disclosers $F(7,71) = 5.69$, $p < 0.001$; partial-disclosers: $F(6,97) = 2.27$, $p = 0.043$; full-disclosers $F(6,101) = 4.77$, $p < 0.001$.

In this context, it is remarkable that a number of striking interpersonal differences were observed between the non- and full-disclosers. First, non-disclosers reported significantly higher levels of parental emotional neglect and abuse in childhood compared to full-disclosers. Second, non-disclosers reported higher levels of loneliness than full-disclosers and had fewer friends and family members in their networks compared to disclosers. Third, non-disclosers were less likely than disclosers to include partners in their social networks. These observations suggest that non-disclosers may represent a distinct group, shaped by a history of parental emotional neglect and abuse. This aligns with previous research showing an association between childhood abuse and neglect and lower levels of social support (Sperry & Widom, 2013), and difficulties in intimate partner relationships (Shahab et al., 2021). Furthermore, it is consistent with previous findings that parental emotional abuse is associated with more severe PTSD symptoms, even when the index trauma is an independent event, such as sexual abuse (Hoeboer et al., 2021). Potentially, negative schemas of others and the self, such as interpersonal distrust, shame, guilt, and feelings of unworthiness, that tend to arise from experiences of parental emotional neglect and abuse, may contribute to the limited social connections in adulthood, relatively more severe trauma symptoms, and a reduced likelihood of disclosing abuse experiences (Carson et al., 2020).

4.2. Perceived support and denser networks are associated with fewer trauma-related symptoms

The second key finding is that individuals who perceived more social support and who had denser networks experienced less severe PTSD symptoms. However, no significant associations were found between network size and average closeness and PTSD symptoms. The findings regarding perceived social support and network density corroborate previous research indicating that both perceived support and dense social networks are associated with less severe PTSD symptomatology (e.g., Aydin et al., 2016; Dworkin et al., 2016; Jaffe et al., 2022; Tarzia et al., 2018). These associations may be related to the fact that both perceived social support and network density are associated with a greater sense of belonging and reduced feelings of loneliness, which, in turn, are associated with a better mental health (Baumeister & Leary, 1995; Walker, 2015; Zhang & Dong, 2022).

The non-significant results regarding network size and average closeness were contrary to our hypotheses. However, when analyzed univariately, both variables were significantly associated with lower PTSD symptoms, suggesting that larger social networks and stronger relational ties are linked to lower PTSD symptom severity. However, due to the moderate correlation between both network size and average closeness with perceived social support, these variables did not explain additional variance in PTSD symptoms beyond perceived social support. This aligns with prior research suggesting that the quality of social support, as measured by perceived social support, more strongly predicts mental health outcomes than the quantity of support, as measured by the number of friends/family members (Letkiewicz et al., 2023).

Regarding the PFI, individuals abused by perpetrators more deeply embedded in their social networks experienced more severe PTSD symptoms. Although previous research links perpetrator familiarity to greater PTSD severity (Lawyer et al., 2006), the positive association observed in the multiple regression analysis should be interpreted with caution. More specifically, the correlation between PFI and PTSD symptoms was negligible ($r = 0.06$), and significance emerged only after controlling for other variables, suggesting a possible suppressor effect (Ludlow & Klein, 2014). This implies that PFI may not directly be associated with PTSD symptoms, but may clarify the relationship between network density and PTSD by suppressing irrelevant variance. In addition, limited variability of the PFI and a small number of participants with an unfamiliar perpetrator (8.6 %) reduce its robustness as a predictor in this sample. Therefore, the observed association should be interpreted cautiously, as the PFI may not fully capture the complexity of the

relationship between perpetrator familiarity and PTSD symptomatology.

4.3. Social support is essential, regardless of disclosure

Across all groups (i.e., full-, partial-, and non-disclosure), higher levels of perceived social support, reflecting warmth, availability of care, and support from friends and family, were associated with less severe PTSD symptoms. No significant associations were found in the groups between network size, average closeness, network density, PFI, and PTSD symptoms. The finding that perceived social support was related to PTSD symptoms regardless of disclosure is remarkable, because one might expect social support to be particularly beneficial for those who have disclosed their CSA, as sharing a traumatic experience may elicit direct support from others. However, our findings suggest that the benefits of social support extend beyond disclosure and may be rooted in a more general sense of being able to rely on others, rather than in the responses received from the social network following disclosure. This finding is consistent with prior research showing that perceived social support, which refers to a sense of availability of support, is more consistently linked to better mental health than received support, which refers to actual responses or actions (Dworkin et al., 2019). This also corroborates the aforementioned need to belong, suggesting that simply the belief that support is available fosters a sense of belonging, which in turn benefits mental health (e.g., Baumeister & Leary, 1995). Additionally, it should be noted that the sexual abuse in this sample occurred, on average, decades ago. As such, the perceived social support in the disclosure groups may also reflect a more enduring and generalized sense of support rather than immediate reactions to the disclosure itself, which may have occurred years ago.

After adding the structural indices of the social network and controlling for disclosure to a professional, the effect of perceived social support was no longer significant for any of the three groups. However, inspection of the effect sizes (β) revealed that the effects of perceived social support on PTSD symptoms in the three groups were similar to the effect observed in the total group. That is, all effects were in the moderate range (Fey et al., 2023) and thus it seems safe to conclude that the non-significant effects of perceived social support on PTSD symptoms in the subgroups were mainly due to the relatively small sample sizes of the subgroups. A similar explanation could be put forward for the absence of significant effects of the structural indices of support and PTSD symptoms in the separate groups.

4.4. Strengths and limitations

While two studies have examined differences in PTSD symptoms between non-disclosers and disclosers (Ahrens et al., 2010; Carson et al., 2020), this study is, to our knowledge, one of the first to not only include a relatively large sample of non-disclosers, but also to consider the nuances of disclosure and examine the role of social support in non-disclosers. While perceived social support has been well studied in relation to PTSD, structural indices of social support remain largely unexplored, particularly in the context of CSA. Additionally, unlike previous studies, this study explores the role of the perpetrator within the social network of individuals with a history of CSA, taking into account the entanglement of the perpetrator within these networks and how this embeddedness relates to trauma-related symptoms.

Notwithstanding these strengths, several limitations should be acknowledged. First, the study sample mostly consisted of women, limiting the generalizability of the findings. Second, an inclusion criterion of non-disclosers was that participants had not disclosed to anyone other than professionals. Although we provided examples of what we meant by 'professional' (e.g., psychologist or school counselor), this definition was open to some interpretation, and we do not have detailed information about the type of professionals and the reason for and intensity of the contact. Related to this, we did not assess whether participants had received trauma-focused therapy for their PTSD symptoms related to the sexual abuse, which prevented us from controlling for possible therapy effects across groups. Finally, in order to reduce participant burden, we did not assess constructs that were not central to our main research questions in much detail. For example, we did not assess traumatic experiences in adulthood, or the time elapsed since the most recent traumatic event, nor did we assess loneliness extensively. These factors could have influenced our outcomes.

4.5. Further research

Although this study found that non-disclosers reported more severe PTSD symptoms than disclosers, its cross-sectional design precludes conclusions about causality. Longitudinal research is needed to determine whether and when disclosure leads to symptom reduction. Future studies should also examine whether the relationship between disclosure and PTSD is influenced by factors such as coping strategies and (expected) reactions from significant others (e.g., belief). Furthermore, it remains unclear how the effects of a general sense of support compare to those of trauma-specific support in response to disclosure. As the present study focused on non-disclosers, whose social networks were unaware of the abuse, this question falls outside its scope but is interesting to explore in future studies.

4.6. Clinical implications

Our findings highlight the importance of strengthening social support and fostering interconnected social networks, for example by joining social groups, such as a sports team, cooking class, reading club, or a peer support group. Mental health professionals could facilitate this by incorporating interventions that focus on strengthening the patient's social network and social functioning, thereby fostering a sense of belonging and reducing feelings of loneliness.

5. Conclusion

Approximately one in three individuals who experienced CSA remain silent about their experiences. Despite this substantial number, non-disclosers are often overlooked in research, making it crucial to devote attention to this group to examine their psychological well-being and factors contributing to it. In our study, non-disclosers exhibited substantially more severe symptoms and lower perceived support than disclosers. Moreover, strict non-disclosers had similar levels of symptoms to partial-disclosers, suggesting that disclosure alone is not necessarily linked to lower symptom severity, but that it may also depend on whether a person perceives the experience(s) of CSA as a secret. Non-disclosers may also represent a distinct group with less social resources, potentially shaped by higher levels of childhood trauma, which may influence disclosure decisions, social support, and PTSD symptoms. These findings challenge conventional assumptions that disclosure is a key factor in symptom reduction. Additionally, perceived social support and being embedded in a more connected social network were both associated with lower symptom severity. Notably, perceived social support was beneficial even among individuals who had never shared their CSA with anyone. This suggests that the beneficial effects of social support may be due to a general perception of support availability, regardless of whether the traumatic experiences are shared or not.

CRediT authorship contribution statement

Kyra E. Verboon: Writing – original draft, Visualization, Methodology, Formal analysis, Data curation, Conceptualization. **Iva A. E. Bicanic:** Writing – review & editing, Investigation, Conceptualization. **Peter Muris:** Writing – review & editing, Supervision, Conceptualization. **Bart Verkuil:** Writing – review & editing, Supervision, Conceptualization. **Bernet M. Elzinga:** Writing – review & editing, Supervision, Funding acquisition, Conceptualization. **Marie-Louise J. Kullberg:** Writing – review & editing, Supervision, Formal analysis, Conceptualization.

Ethical approval

This study was approved by the Leiden University Psychology Research Ethics Committee, Leiden, The Netherlands (reference number: 2024-07-29-B.M. Elzinga-V1-5594).

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Declaration of competing interest

The author(s) declare that there were no conflicts of interest with respect to the authorship or the publication of this article.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chiabu.2025.107702>.

Data availability

Data will be made available on request.

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