Self-esteem Mediates the Relationship between Sexual Trauma and Depression and Anxiety in Dutch Women

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Abstract

Even though some research is available on depression, anxiety and self-esteem after sexual trauma, the role of self-esteem in the association between sexual trauma, depression and anxiety has not been addressed. Understanding these interrelationships will help to provide victims of sexual trauma with adequate care. Therefore, this study aimed to investigate the mediating effect of self-esteem in the relationship between sexual trauma and depression and anxiety symptoms. Data on self-esteem, depression symptoms, anxiety symptoms and life events were collected from 345 Dutch undergraduate students. Based on their reported life events, they were grouped into one of the three conditions: sexual trauma (n = 122), non-sexual trauma (n = 153) and no trauma (n = 70). The results showed that self-esteem mediated the relationship between sexual trauma and depression and anxiety symptoms. Those who experienced sexual trauma reported lower self-esteem and higher depression scores than those who did not. Individuals who experienced sexual trauma reported higher anxiety scores than those who experienced no sexual trauma. Higher self-esteem was associated with lower anxiety and depression scores. Thus, integrating an intervention aimed to increase self-esteem into the treatment of survivors of sexual trauma may contribute to the prevention of depression and anxiety.

Keywords: sexual trauma, sexual victimisation, self-esteem, depression, anxiety

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Sexual traumatic events such as sexual abuse, sexual assault, (attempted) rape, performance of sexual acts through force or threat, and unwanted or uncomfortable sexual experiences, can have a great impact on the mental wellbeing of its survivors and has been studied intensively in the context of post-traumatic stress disorder (i.e., PTSD; e.g., McGrew et al., 2020). However, this overemphasis on PTSD in sexual violence studies results in a disregard to other mental health outcomes and fails to recognise the serial or escalating forms of sexual violence (Mechanic, 2004). Only few studies researched the impact of sexual victimisation in the context of depression (Kim et al., 2017; Kucharska, 2017), anxiety (Grayston et al., 1992) or both (Browne & Finkelhor, 1986; Levitan et al., 2003; Whiffen & MacIntosh, 2005). Even though depression and anxiety are two distinctive disorders, there are high rates of comorbidity between both disorders (Blanco et al., 2014; Van Loo et al., 2016). Therefore, this study will include both depression and anxiety to gain valuable insight into the unique variance explained by depression and anxiety after controlling for the other disorder and to broaden the knowledge on the impact of sexual victimization on both psychological complaints separately to provide these victims with an appropriate intervention.

Regarding research on depression and anxiety after sexual trauma, it is mostly studied in survivors of childhood sexual abuse (i.e., CSA; Brayden et al., 1995; Browne & Finkelhor, 1986; Feiring et al., 2002; Levitan et al., 2003; Whiffen & MacIntosh, 2005) with only one study researching the effect of sexual trauma on depression in adult women (Kucharska, 2017). Thus, the impact of sexual trauma and the role of contributing factors does not have a well-established scientific basis in adult women, which may result in a misunderstanding of the sequelae of sexual trauma in adult victims. This misunderstanding may lead to providing an

inappropriate intervention to these victims. Additionally, only one study made a distinction in trauma type and found that there were differences in depression across sexual trauma, non-sexual trauma and no trauma groups (Kucharska, 2017). This may indicate that victims of sexual trauma need a different intervention compare to other trauma types. To gain a better understanding of the effect of sexual trauma compared to non-sexual trauma and no trauma groups, and to ensure adult victims of sexual trauma receive a fitting intervention, the present study will address sexual trauma in adult women. The comparative study on self-esteem and depression in women who experienced sexual trauma and those who did not found that those who experienced sexual trauma reported higher depression scores than those who experienced a non-sexual trauma and those who experienced no trauma (Kucharska, 2017). Findings in literature on CSA may provide further insight into the effects of sexual trauma. Several studies found that adults who experienced CSA have an increased risk for developing problems with their mental well-being (Brayden et al., 1995; Whiffen & MacIntosh, 2005). Higher depression scores were found in sexually abused adolescents (Kim et al., 2017), but no differences in anxiety were found between sexually abused girl compared to non-abused girls (Grayston et al., 1992). On the contrary, another study found higher rates of anxiety in CSA survivors after controlling for confounding covariates, namely socio-demographic background, family functioning and child factors (Fergusson et al., 2013). Thus, even though there is a clear association between sexual victimisation and depression, the findings on the association between sexual abuse and anxiety are few and inconsistent. This inconsistency may be due to the fact that Fergusson et al. (2013) controlled for confounding variables. Even so, measures of mental wellbeing that included anxiety also found that CSA increased the risk of mental health problems (Brayden et al., 1995; Whiffen & MacIntosh, 2005). To summarise, similar results were found in children and adults regarding depression after sexual victimisation (Kim et al., 2017; Kucharska, 2017). However, whether similar results in anxiety after sexual trauma

present in adults remains to be seen. Nevertheless, the findings suggest that sexual trauma may be associated with depression, but that the association with anxiety needs to be investigated further.

One of the contributing factors in the association between sexual trauma and depression and anxiety may be self-esteem. Both anxiety and depression are associated with low self-esteem (Ehntholt et al., 1999; Da Silva et al., 2022; Struijs et al., 2021). It has been theorised that self-esteem may act as a buffer against psychopathology (Cast & Burke, 2002; Pyszczynski et al., 2004), yet most studies treat self-esteem as a moderator (e.g., Pohl et al., 2020). However, self-esteem is not deemed to be consistent, but can be built up (e.g., by feedback from others) or depleted (e.g., after a threatening event; Cast & Burke, 2002). Thus, it would seem that a threatening event, such as a sexual traumatic event, could decrease the victim's self-esteem and that treating self-esteem as a mediator would be more appropriate. Based on this notion and the buffer hypothesis, this decrease in self-esteem may also indicate that this would result in higher depression symptoms, anxiety symptoms, or both after sexual victimisation. Even though one study did not find an association between sexual violence and self-esteem (Riazi et al., 2017), the study on sexually abused women reported lower self-esteem in those who experienced a sexual trauma than those who did not experience any trauma or a non-sexual trauma (Kucharska, 2017). Similarly, the studies on CSA found that the sexually abused children reported lower self-esteem scores compared to the non-abused children (Grayston et al., 1992; Kim et al., 2017). Remember that higher depression scores were also found in those who experienced sexual victimisation (Kim et al., 2017; Kucharska, 2017), yet mixed finding in anxiety symptoms were found (Fergusson et al., 2013; Grayston et al., 1992). Even though these three studies (Grayston et al., 1992; Kim et al., 2017; Kucharska, 2017) researched both self-esteem and depression or anxiety, none of these studies investigated the mediating effect of self-esteem in the association between sexual trauma and depression or anxiety. Therefore,

this study will conduct mediation analyses to explore the interrelationships between self-esteem, sexual trauma and anxiety and depression symptoms, before and after controlling for the other symptoms.

Based on previous studies, it was hypothesised that the relationship between sexual trauma and depression symptoms would be partially mediated by self-esteem, because an association between sexual trauma and depression was found (Kim et al., 2017; Kucharska, 2017). It was also hypothesised that the relationship between sexual trauma and anxiety symptoms would be partially mediated by self-esteem, since an association between anxiety and CSA was found (Fergusson et al., 2013). The mediation analyses where the other symptoms were included as covariate was an exploratory analysis. Further, it was hypothesised that those who experienced sexual trauma would report higher depression scores, higher anxiety scores and lower self-esteem scores than those who experienced a non-sexual trauma or no trauma. Based on the buffer hypothesis, it was hypothesised that self-esteem would be negatively associated with both depression and anxiety symptoms.

Methods

Research Design and Participants

This study includes an analysis of data from a convenience sample which were collected for the *Omgaan met onzekerheid* (i.e., dealing with uncertainty) study via the Qualtrics website. Originally, the study consisted of two waves. The second wave followed six months after the first wave. The present study only included data from the first wave, since data for the second wave was still being collected. Therefore, the current study had a between-subjects, cross-sectional research design. Additionally, the overview of questionnaires is limited to those relevant for the present study.

Data were collected from 493 Dutch undergraduate students of the faculty of social and behaviour sciences. Data collection started on march 18th 2020 and ended on September 15th

2021. Participants received course credits for participation in the study. Of the participants 94 identified as male (19.1%), 363 as female (73.6%) and one as other (0.2%). 35 participants (7.1%) did not disclose their gender. For the purpose of testing the hypotheses in the present study, eligible participants were female and at least 18 years old. Therefore, 130 participants were excluded from the analyses. 13 participants with missing values and five participants with standardized residual values exceeding the critical value of 3.29 were excluded from the dataset. The remaining 345 participants were between 18 and 58 years old (M = 21.78, SD = 3.45).

Materials

Exposure to Trauma

To measure the exposure to different traumatic events the Life Events Checklist for the DMS-5 (LEC-5; Weathers et al., 2013) was used. This questionnaire has 17 items to assess the exposure to 16 different traumatic events (e.g., "Fire or explosion"). The 17th item assesses the exposure to "Any other very stressful event or experience". Each item measured the exposure to the traumatic event on six levels (i.e., "Happened to me", "Witnessed it", "Learned about it", "Part of my job", "Not sure" and "Does not apply"). Reliability was found to be good for direct experience of the traumatic event, but was found to be fair at all the other levels of exposure (Pugach et al., 2021). The test-retest reliability was found to be good or fair for most of the traumatic events, however some traumatic events (e.g., "Any other very stressful event or experience") showed poor to modest reliability (Pugach et al., 2021).

Participants who reported that sexual violence or other unwanted sexual experiences happened to them, were grouped into the sexual trauma (i.e., ST) condition. Participants who reported to have experienced, witnessed, took knowledge of, or were exposed to any of the traumatic life events because of their job, and those who reported to have witnessed, took knowledge of or were exposed to sexual violence or other unwanted sexual experiences

because of their job were grouped into the non-sexual trauma (i.e., NST) condition. Participants who reported that they did not experience any of the traumatic life events were grouped into the no trauma (i.e., NT) condition.

Self-Esteem

To measure self-esteem the Dutch version of the Rosenberg Self-Esteem Scale (RSES; Franck et al., 2008; Rosenberg, 1989) was used. The RSES contains ten items of which five are positive items (e.g., "On the whole, I am satisfied with myself.") and five are reversed items (e.g., "At times, I think that I am no good at all."). The items were scored on a four-point scale from 0 ("strongly disagree") to 3 ("strongly agree"). Total scores ranged from 0 to 30 with higher scores indicating higher global self-esteem. The internal consistency in the present sample was found to be excellent for the total score (Cronbach's $\alpha = 0.90$). The construct validity was found to be good (Franck et al., 2008).

Depression Symptoms

To measure depression symptoms the Dutch second version of the Beck Depression Inventory (BDI-II-NL; Beck et al., 1996; Van der Does et al. 2002) was used. The BDI-II-NL contains 21 items which contain statements describing the severity of a symptom in the last two weeks. Items were scored on a four-point scale from 0 (e.g., "I don't feel sad at all") to 3 ("e.g., I am so sad or unhappy, I can't stand it"). Total scores ranged from 0 to 63 where higher scores indicate higher levels of depression. In this sample the internal consistency of the total score was found to be excellent (Cronbach's $\alpha = 0.91$). The construct validity was found to be good (Van der Does et al. 2002).

Anxiety Symptoms

To measure generalised anxiety symptoms the Dutch version of the Beck Anxiety Inventory (BAI-NL; Beck et al., 1988) was used. This questionnaire contains 21 items which describe a somatic or cognitive symptom and has to be scored on the severity of occurrence

over the last week. Items were scored on a four-point scale from 0 (i.e., “not at all”) to 3 (i.e., “a lot, I can’t stand it”). Total scores ranged from 0 to 63 where higher scores indicate higher levels of anxiety. In this sample the internal consistency of the total score was found to be excellent (Cronbach’s $\alpha = 0.91$). The concurrent and discriminant validity were found to be good (Beck et al., 1988).

Procedure

The study was initiated after permission was obtained from the Ethics Review Board of the Faculty Social and Behavioural Sciences. Students of the social and behavioural science faculty who enrolled for the bachelor research course were recruited via the *proefpersoonuren*-website. Participation was voluntary and participants who applied for participation received a link to a secured website on the Qualtrics-system and a unique log-in code. On this website, participants saw an information letter and the option to continue or terminate their participation. After signing the informed consent, they filled out the online survey which contained several self-report questionnaires, and took about 45 minutes. Participants were able to terminate their participation throughout the study without consequences. After completion, the participants received course credits for participation in the study.

Data Analyses and Processing

To test if the relationship between sexual trauma and anxiety and depression symptoms was mediated by self-esteem, two mediation analyses were conducted using non-parametric bootstrapping in PROCESS for SPSS (PROCESS version 4.0; Model 4; Hayes 2022). The dependent variables were depression symptoms and anxiety symptoms, the independent variable was trauma type (i.e., ST, NST, or NT), and the mediator was self-esteem. Each mediation analysis was conducted for each dependent variable. The independent variable was split into two dichotomous variables to test the differences between ST and NST (i.e., 0 indicating ST, 1 indicating NST), and ST and NT (i.e., 0 indicating ST, 1 indicating NT). ST

was the reference group in both dichotomous variables. For the exploratory analysis, two mediation analyses were conducted similarly to the meditation analyses described above, but with the other dependent variable included as the covariate (i.e., depression as dependent variable and anxiety as covariate, and anxiety as dependent variable and depression as covariate). The path from the independent variable to the dependent variable without the mediator included in the analysis was considered the total effect. The path from the independent variable to the dependent variable with the mediator included in the analysis was considered the direct effect. The path from the independent variable to the dependent variable through the mediator, was considered the indirect effect. The indirect effect was considered significant when the bootstrapped 95% confidence interval, bootstrapped on 5000 resamples, did not contain zero. The Sobel-test was used to determine the significance level.

Before the statistical analyses were conducted, the assumptions associated with the statistical analyses were tested. Both the histogram and P-P plot showed that the normality assumption was satisfied. The scatterplots showed linear relationships between the variables, satisfying the linearity assumption. The residual plots showed small signs of heteroscedasticity (see Appendix A), indicating that the homoscedasticity assumption was not fully met and that caution should be taken. The VIF and tolerance statistics indicated that no multicollinearity was present. The assumption of independent observations is also assumed as there was no indication of dependency.

Results

Descriptives

Of the 345 participants, 35.4% had experienced a sexual traumatic event (n = 122), 44.3% had experienced one or more non-sexual traumatic event (n = 153), and 20.3% had never experienced a traumatic event (n = 70). No differences in ages were found across the three conditions, $F(2, 342) = 1.54$, $p = .216$. Mean scores and correlations were calculated for self-

esteem, anxiety symptoms and depression symptoms (see Table 1). The correlations all followed the same trend and were all found to be significant. Self-esteem was negatively associated with depression and anxiety symptoms, and anxiety symptoms was positively associated with depression symptoms across all groups and the total dataset.

Table 1

Mean, Standard Deviations and Correlations of Self-Esteem, Anxiety Symptoms and Depression Symptoms

Variable	*n*	*M*	*SD*	1.	2.
Sexual traumatic event	122				
1. Self-esteem		28.85	5.83		
2. Anxiety symptoms		13.04	9.68	-0.40**	
3. Depression symptoms		33.14	8.52	-0.71**	0.51**
Non-sexual traumatic event	153				
1. Self-esteem		31.15	5.18		
2. Anxiety symptoms		9.01	8.21	-0.53**	
3. Depression symptoms		29.47	7.79	-0.64**	0.74**
No traumatic event	70				
1. Self-esteem		30.54	5.27		
2. Anxiety symptoms		11.61	10.43	-0.33**	
3. Depression symptoms		29.57	6.47	-0.53**	0.62**
Total	345				
1. Self-esteem		30.21	5.52		
2. Anxiety symptoms		10.97	9.37	-0.45**	
3. Depression symptoms		30.79	7.99	-0.66**	0.63**

Note. Self-esteem was measured with the RSES. Anxiety symptoms were measured with the BAI. Depression symptoms were measured with the BDI. ** indicates $p < .001$

Trauma and Depression Symptoms Mediated by Self-Esteem

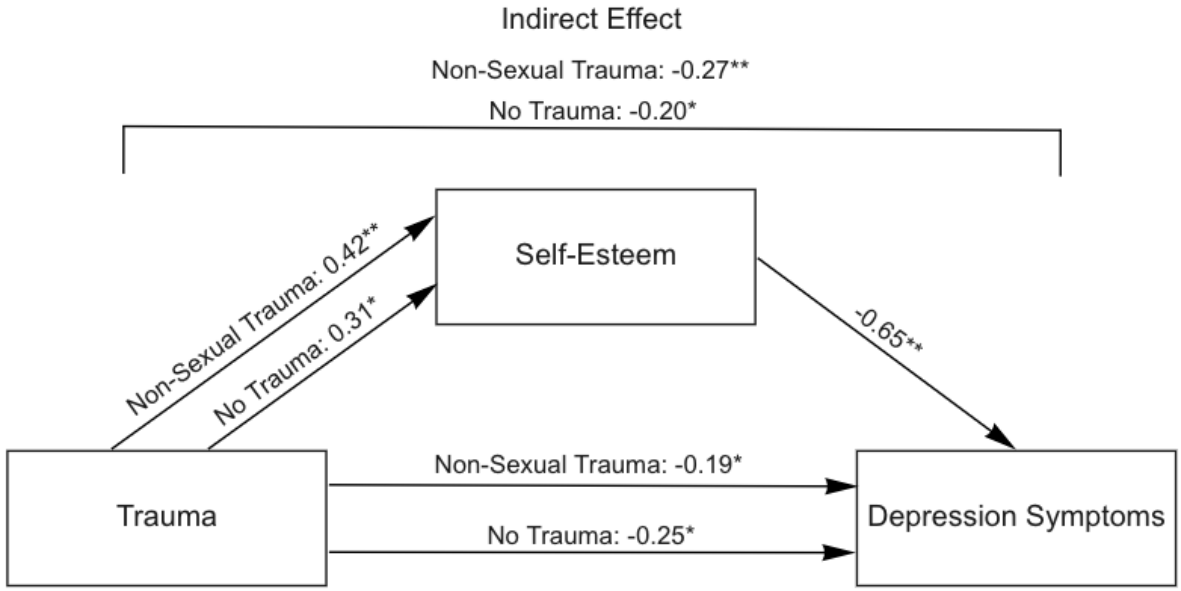
The total effect of trauma with depression symptoms was significant, $F(2, 342) = 8.54$, $p = .001$, $R^2 = 0.05$. Individuals who experienced a NST reported lower depression scores than those who experienced a ST, 95% CI [-5.54, -1.80], $t(344) = -3.87$, $p < .001$. When the mediator was included, the direct effect was smaller but was still found to be significant $F(2, 341) = 3.15$, $p = .044$, $R^2_{change} = 0.01$. Figure 1 illustrates the standardised coefficients of the

mediation model. Individuals who experienced a NST reported less symptoms of depression scores than those who experienced a ST, 95% CI [-2.96, -0.07], $t(344) = -2.07$, $p = .039$. Based on the path between trauma and self-esteem, the results showed that individuals who experienced a NST reported higher self-esteem scores than those who experienced a ST, 95% CI [1.00, 3.59], $t(344) = 3.48$, $p = .006$. Higher self-esteem scores were associated with less depression symptoms across all groups, $b = -0.94$, 95% CI [-1.05, -0.82], $t(344) = -15.82$, $p < .001$. The unstandardised indirect effect for ST versus NST through self-esteem was -2.15, 95% CI [-3.38, -0.91]. This indirect effect was found to be significant by using the Sobel test, $z = -3.40$, $p < .001$. Thus, the relationship between ST versus NST and depression symptoms was partly mediated by self-esteem because the direct effect was found to be significant.

Regarding the difference between NT and ST, individuals who experienced NT reported lower scores on depression symptoms than those who experienced a ST, 95% CI [-5.87, -1.26], $t(344) = -3.04$, $p = .003$. When the mediator was included, those who experienced NT reported less depression symptoms scores than those who experienced a ST, 95% CI [-3.75, -0.22], $t(344) = -2.21$, $p = .028$. Thus, the direct effect was found to be significant. The unstandardised indirect effect for ST versus NT was -1.58, 95% CI [-3.14, -0.11], and was found to be significant, $z = -2.07$, $p = 0.039$. Thus, the relationship between ST versus NT and depression symptoms was partly mediated by self-esteem as the direct effects were found to be significant.

Figure 1

Mediation Model where Trauma and Depression Symptoms are Mediated by Self-Esteem



Note. Standardised regression coefficients for the relationship between trauma and depression symptoms mediated by self-esteem. Trauma consisted of three conditions where sexual trauma was the reference group. N = 345. * indicates $p < .05$ ** indicates $p < .001$.

Trauma and Anxiety Symptoms Mediated by Self-Esteem

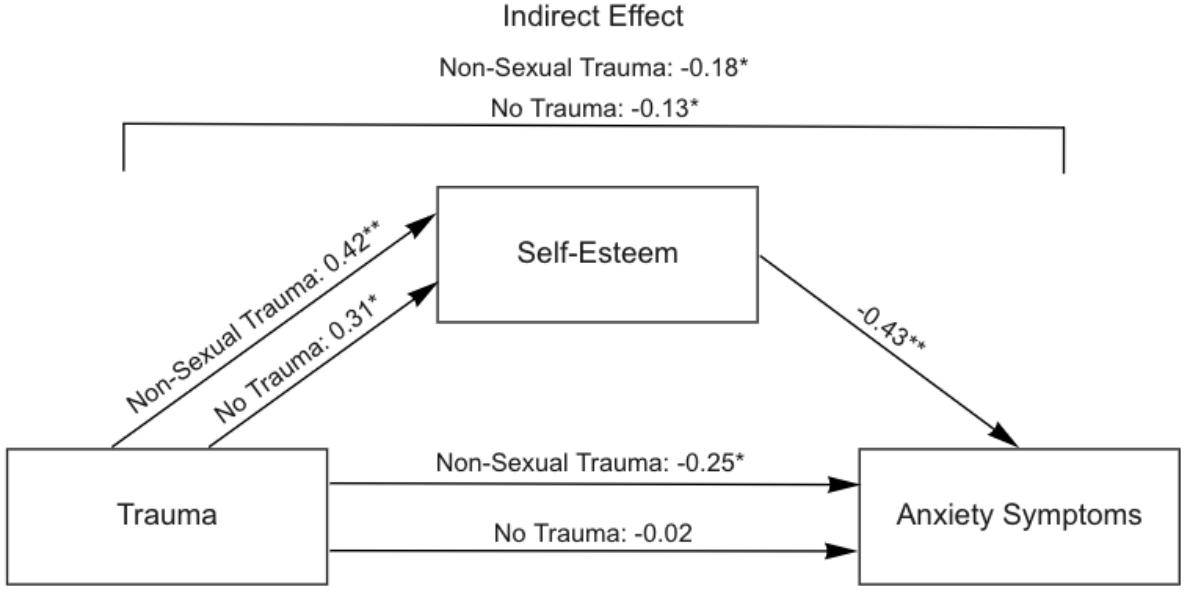
The total effect between trauma and anxiety symptoms was significant, $F(2, 342) = 6.69$, $p = .001$, $R^2 = 0.04$. Individuals who experienced a NST reported feeling less anxious that those who experienced a ST, 95% CI [-6.23, -1.83], $t(344) = -3.60$, $p < .001$. When the mediator (i.e., self-esteem) was included, the direct effect found to be significant, $F(2, 341) = 3.09$, $p = .047$, $R^2_{change} = 0.01$. Figure 2 illustrates the standardised coefficients of the mediation model. Individuals who experience a NST reported lower scores for anxiety symptoms than those who experienced a ST, 95% CI [-4.35, -0.31], $t(344) = -2.27$, $p = .024$. The coefficients for the relationship of trauma and self-esteem were significant and can be found in the mediation analysis of trauma, self-esteem and depression symptoms. Regarding the path between self-esteem and anxiety, higher scores in self-esteem were associated with less anxiety symptoms across all groups, $b = -0.74$, 95% CI [-0.90, -0.58], $t(344) = -8.92$, $p < .001$. The unstandardised indirect effect for ST versus NST through self-esteem was observed to be -1.69, 95% CI [-2.70,

-0.70]. This indirect effect was found to be significant by using the Sobel test, z = -3.26, p < .001. Because the direct effect was observed to be significant, the relationship between ST versus NST and anxiety symptoms was partly mediated by self-esteem.

No difference was found in anxiety symptoms between individuals who experienced NT versus those who experienced a ST, $t(344)$ = -1.03, p = .303. Also when the mediator (i.e., self-esteem) was included, no difference between these two groups was found in anxiety symptoms, $t(344)$ = -0.14, p = .887. Individuals who experienced NT reported higher self-esteem scores than those who experienced a ST, 95% CI [0.09, 3.29], $t(344)$ = 2.07, p = .039. Higher scores in self-esteem were associated with less anxiety symptoms across all groups. The unstandardised indirect effect for ST versus NT was -1.25, 95% CI [-2.47, -0.08] and was found to be significant, z = -2.04, p = 0.042. Because the direct effect was not significant, the relationship between ST versus NT and anxiety symptoms was fully mediated by self-esteem.

Figure 2

Mediation Model where Trauma and Anxiety Symptoms are Mediated by Self-Esteem



Note. Standardised regression coefficients for the relationship between trauma and anxiety symptoms mediated by self-esteem. Trauma consisted of three conditions where sexual trauma was the reference group. N = 345. * indicates p < .05 ** indicates p < .001.

Mediation Analyses when Controlling for Depression or Anxiety Symptoms

When anxiety symptoms were included as a covariate, the relationship between sexual trauma versus non-sexual trauma and depression symptoms was observed to be fully mediated by self-esteem. Additionally, the indirect effect of sexual trauma versus no trauma was no longer significant, but the direct effect was. This indicates that the relationship between sexual trauma versus no trauma and depression was no longer mediated by self-esteem. When depression symptoms were included as a covariate, the total effect, direct effect and indirect effect were no longer significant. The covariate was observed to be significant, which indicates that depression symptoms explained the variance in trauma, self-esteem and anxiety symptoms. In appendix B the mediation analyses can be found.

Discussion

In this study the mediating effect of self-esteem on the relationship between sexual trauma and anxiety and depression symptoms in women were investigated. In accordance with the hypotheses, the results showed that sexual trauma was not only associated with higher depression and anxiety symptoms, but also with low self-esteem, and that this low self-esteem was also associated with higher depression and anxiety symptoms. Even though no causation can be inferred due to the cross-sectional research design, this suggests that self-esteem may act as a buffer against depression and anxiety (Cast & Burke, 2002; Gurung et al., 2019; Pyszczynski et al., 2004). The buffer hypothesis argues that self-esteem is a protective factor that protects against the detrimental effects of a stressor, but also that self-esteem may be affected by external factors (Cast & Burke, 2002). Indeed, the results also showed that individuals who experienced a sexual trauma reported lower self-esteem scores and more severe depression and anxiety symptoms than those who did not experience a sexual trauma. Based on the buffer hypothesis, this indicates that sexual trauma survivors may have lower self-esteem and thus, could have a higher risk of developing depression and anxiety complaints. In fact, low self-esteem has been found to make individuals more vulnerable to the

development of depression (Sowislo & Orth, 2013) and sexual victimisation (Van Bruggen et al., 2006). In regard to anxiety symptoms, the effects between low self-esteem and anxiety were observed to be more balanced, which means that anxiety may decrease self-esteem and that low self-esteem could make an individual more vulnerable to anxiety (Sowislo & Orth, 2013). A prospective longitudinal study could investigate the course of events, whether low self-esteem is associated with sexual victimisation and if self-esteem protects against the development of depression and anxiety. With this knowledge, individuals with an increased risk of sexual victimisation could be provided with an intervention to prevent the occurrence of sexual violence. Additionally, if sexual trauma does occur, an intervention could be provided to reduce the negative impact that this might have.

As hypothesised, individuals who experienced a sexually traumatic event showed higher depression scores than those who experienced a non-sexual trauma or no trauma. Previous literature found comparable associations between sexual trauma and depression in both adult and child survivors (e.g., Kim et al., 2017; Kucharska, 2017), however, these studies as well as the present study were unable to determine whether depression symptoms are the result of the sexual trauma, whether they create a vulnerability to experience sexual traumatic events, or both. Previous studies found that those who scored higher on depression were more likely to experience sexual victimisation (Krahé & Berger, 2017). Sexual victimisation resulted in higher depression rates and depression increased risk for revictimisation (Krahé & Berger, 2017; Livingston et al., 2007). Thus, addressing depression symptoms in sexual trauma survivors may be vital for the prevention of sexual revictimisation.

As expected, the results showed that those who experienced a non-sexual trauma were, on average, less anxious than those who experienced a sexual trauma. This is comparable to the results of Fergusson et al. (2013) even though their study included CSA survivors and controlled for confounding variable. Contradictory to the hypothesis, no differences were found

in anxiety symptoms between those who experienced a sexual trauma and no trauma. Grayston et al (1992) also reported no difference in anxiety between sexually abused girls compared to non-abused girls. However, it is important to note that these studies did not make the distinction between non-sexual trauma and no trauma, but only made the distinction between sexual abuse compared to no sexual abuse. Nevertheless, it is unclear why the individuals who experienced a sexual trauma do not differ in anxiety score compared to those who experienced no trauma. Future research could focus on investigating anxiety symptoms after sexual trauma, non-sexual trauma and no trauma and include factors such as social support and coping strategies to provide further insight into this association and the found differences. Regarding the implications of these findings, it still implies that sexual trauma survivors may benefit from an intervention which addresses anxiety.

Regarding the observed lower self-esteem in sexual trauma survivors, a low self-esteem may be the result of victim blaming, self-blame, guilt and shame after sexual trauma (Budiarto & Helmi, 2021; Feiring et al., 2002; Kresznerits et al., 2021; Lila et al., 2013; Orchowski et al., 2005). Guilt and shame were found to be higher in victims of sexual trauma than in victims of other traumatic events (Aakvaag et al., 2016), which could explain why self-esteem was lower in victims of sexual trauma than those of other traumatic or no traumatic events in the present study. Furthermore, an association between victim-blaming, self-blame, dysfunctional attitudes, guilt, shame and depressions and anxiety symptoms was found in previous literature (Aakvaag et al., 2016; Feiring et al., 2002; Kresznerits et al., 2021; Lila et al., 2013). These findings suggest that other factors, such as shame and guilt, may contribute to the decrease in self-esteem and the increase in depression and anxiety after sexual trauma. However, since the present study had a cross-sectional design and therefore lacks causal inference, we cannot conclude that sexual trauma results in low self-esteem. Another explanation could be that those who have low self-esteem may be more vulnerable to sexual victimisation because they do not

have the resources available to get out of a sexually threatening situation. Indeed, research showed that low sexual self-esteem made individuals more vulnerable to sexual victimisation (Krahé & Berger, 2017; Van Bruggen et al., 2006). Low sexual self-esteem was associated with low sexual assertiveness (May & Johnston, 2022; Ménard & Offman, 2009), which could make it more difficult for individuals to refuse unwanted sexual advances (Livingston et al., 2007). Unsurprisingly, low sexual assertiveness was found to be associated with sexual (re)victimisation (Bhochhibhoya et al., 2021; Franz et al., 2016; Livingston et al., 2007). Unfortunately, little research on the mechanisms behind the decrease in self-esteem after sexual victimisation is available, thus including the effects on (sexual) assertiveness, victim blaming, shame and guilt on self-esteem after sexual trauma in future research could be a topic of interest. However, regardless of the direction of self-esteem in the association with sexual trauma, depression and anxiety, the findings of the present study show the significance of self-esteem in victims of sexual traumatic events, as it is not only associated with less severe depression and anxiety symptoms, but also with a lower risk of (re)victimisation (Krahé & Berger, 2017). Therefore, it is especially important to provide these victims with an intervention that could increase their self-esteem after a sexual traumatic event to lower their risk for depression, anxiety and, ultimately, revictimisation. For example, competitive memory training (i.e., COMET), an intervention targeting self-esteem, in combination with treatment as usual has been found to effectively improve self-esteem as well as depression severity in adult patients (Korrelboom et al., 2012).

The exploratory mediation analyses showed that the mediation effect of self-esteem in anxiety symptoms disappeared after controlling for depression symptoms. However, depression symptoms explained the variance in trauma, self-esteem and anxiety symptoms. This indicates that depression, but not anxiety, may be associated with sexual trauma and self-esteem which may mean that interventions for victims of sexual trauma should focus mainly

on depression and self-esteem. However, it is important to note that this result might have occurred due to the fact that the depression scale overlaps more with the self-esteem measure, because a self-esteem item is already incorporated within the BDI. This could have caused the depression symptoms to explain more of the variance in self-esteem, reducing the explained variance by anxiety. Another explanation could be that the present study made use of a nonclinical sample which could explain why this result occurred, because the symptoms might not have been severe enough to discriminate between both constructs. However, a study on the development of a transdiagnostic model of low self-esteem which used a heterogenous clinical sample, found similar results (Kresznerits et al., 2021), but they hypothesised that anxiety mediated the relationship between life events and self-esteem, thus their results are not directly comparable to the present findings. Future research could replicate the present study with a clinical sample to see if the same result appears.

Strengths and Limitations

To the author's knowledge this is the first study that investigated the mediating effect of self-esteem in the relationship between sexual trauma and depression and anxiety symptoms. The differentiation between sexual trauma, non-sexual trauma and no trauma showed that survivors of sexual trauma may need a different treatment approach than those who did not experience sexual trauma and the broad definition of sexual trauma allows for good generalisability, yet several limitations are present. The first limitation is that this study had a cross-sectional design, which means that no causal inferences can be derived from this study. Therefore, the results and implications need to be interpreted with caution. However, prior research findings provide support for several orders of events (Krahé & Berger, 2017; Sowislo & Orth, 2013; Van Bruggen et al., 2006). Future research could conduct a prospective longitudinal study to gain insight into the order of events in sexual trauma. It would also be interesting to include other factors such as victim blaming, guilt, shame and assertiveness to

investigate the complex mechanisms behind relationships between self-esteem, depression, anxiety and sexual (re)victimisation.

The second limitation is that little is known about when the traumatic event took place or how often it occurred. First, the traumatic event could have occurred during childhood, adolescence or adulthood. However, this might not be that problematic, because the findings in literature in children, adolescent and adults are quite similar (e.g., Kim et al., 2017; Kucharska, 2017), yet it is important to note that more literature on the impact of sexual trauma in adults is needed to affirm this. Second, a lot of time could have passed or it could have happened recently, but time passed since the sexual trauma might also not be that impactful as similar results have been found in adults who had experienced CSA (e.g., Kresznerits et al., 2021; Kucharska, 2017). Lastly, sexual trauma could have been a single incident or structural incidents. This might actually be a cause for concern, as previous studies found that repeated sexual victimisation was associated with more severe PTSD, higher distress and lower self-esteem (Arata, 1999; French et al., 2013), but it is unclear if there are differences in depression and anxiety between single events and structural abuse. Future research could differentiate between single incidents and structural sexual victimisation to address this issue.

The third limitation, is that the LEC-5 item "other unwanted or uncomfortable sexual experiences" can be interpreted in multiple ways. This is especially problematic because it is unclear whether these experiences could be considered traumatic as this category could range from e.g., uncomfortable feeling sexual intercourse with given consent to sexual molestation. Using a broad definition of sexual trauma ensures good generalizability of the results found in the present study as it includes various forms of sexual victimisation, and previous studies on a broad range of sexual traumatic events found similar results (e.g., Snaychuk et al., 2020). However, the broad interpretation of this item could have included uncomfortable sexual experience that were not considered to be traumatic. Even so, sexual pain was found to be

negatively associated with (sexual) self-esteem (Kong et al., 2022; Peixoto et al., 2018), depression and anxiety (Ter Kuile et al., 2010), which may indicate that this broad interpretation of this item may not have impacted the results in such a way that different results could be expected when this item was not included.

Conclusion

The present study was a first attempt to get a better understanding of contribution of self-esteem in the relationship between sexual trauma and depression and anxiety symptoms. It shows that self-esteem plays an important role in the association between depression and anxiety symptoms and sexual trauma, and showed that the buffer hypothesis may also be relevant in the context of sexual trauma. This implies that it may be essential to integrate an intervention aimed to increase self-esteem into the treatment of survivors of sexual trauma as it may prevent depression, anxiety and sexual revictimisation.

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Appendix A

Residual Plots Showing Small Signs of Heteroscedasticity

Figure 1

Residual Plot of a Regression Where Self-Esteem and Trauma Type Predict Depression

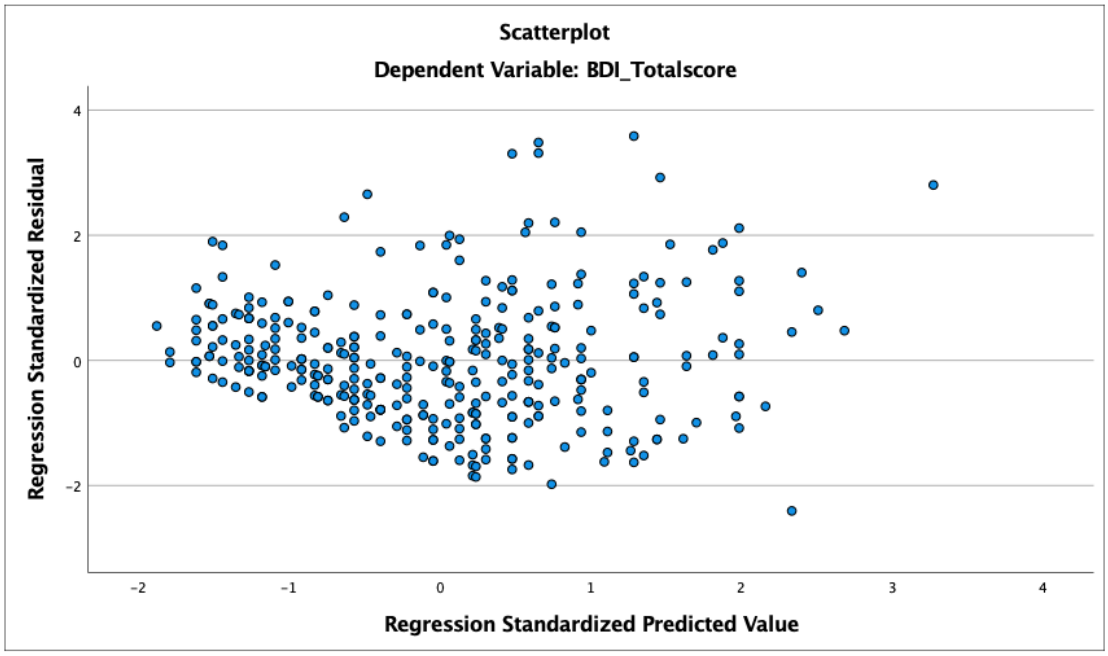
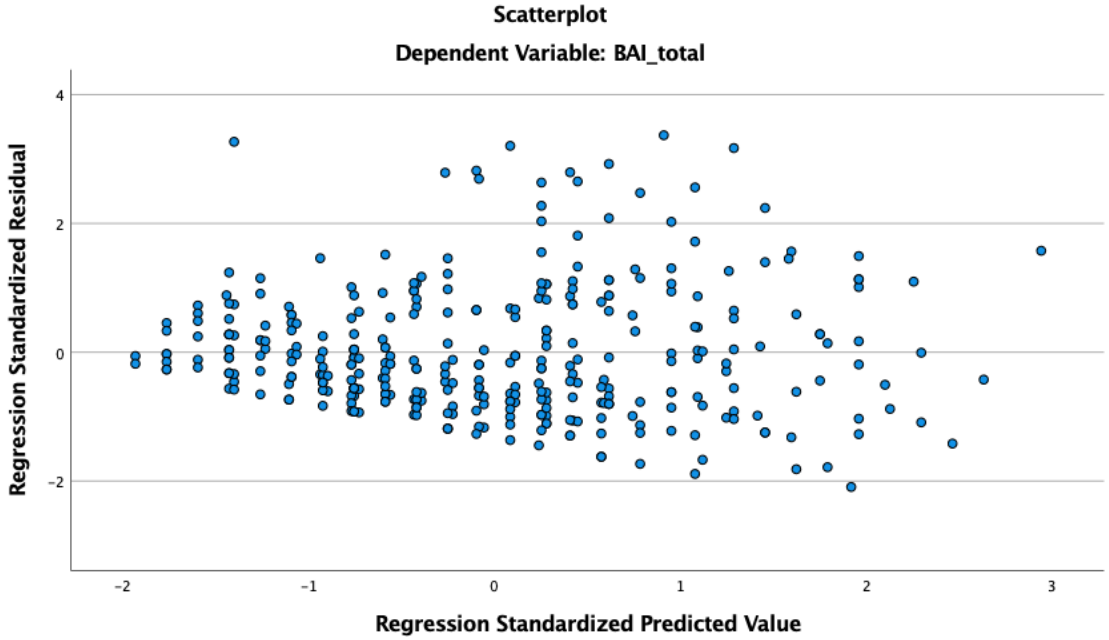


Figure 2

Residual Plot of a Regression Where Self-Esteem and Trauma Type Predict Anxiety



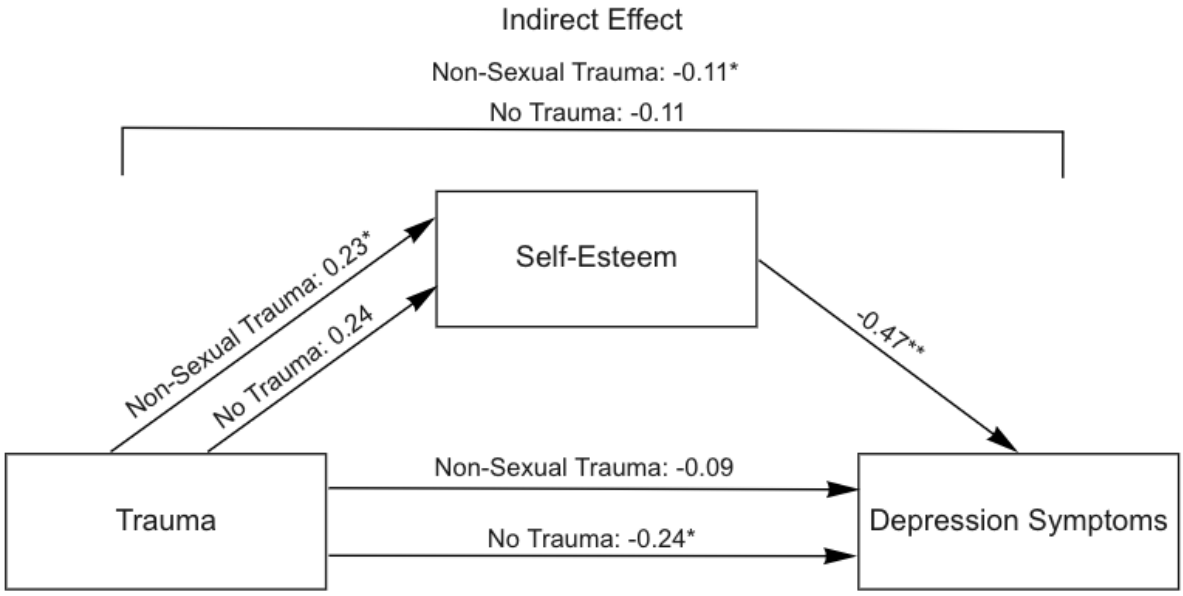
Appendix B

Mediation Analyses when Controlling for Depression or Anxiety Symptoms

When anxiety symptoms were included as a covariate, the total effect of trauma was still significant, $F(3, 341) = 78.17$, $p < .001$, $R^2 = 0.41$. Individuals who experienced a NST reported scores that were 1.57 lower on symptoms of depression than those who experienced a ST, 95% CI [-3.07, -0.07], $t(344) = -2.06$, $p = .041$. Individuals who experienced NT reported 2.82 fewer depression symptom score than those who experienced a ST, 95% CI [-4.65, -1.00], $t(344) = -3.05$, $p = .003$. Only those who experienced a NST showed a difference in self-esteem scores compared to those who experienced a ST, $b = 1.27$, 95% CI [0.07, 2.46], $t(344) = 2.09$, $p = .036$. Higher self-esteem scores were still associated with lower depression scores, $b = -0.68$, 95% CI [-0.79, -0.57], $t(344) = -11.82$, $p < .001$. The unstandardised indirect effect for ST versus NST through self-esteem was -0.86, 95% CI [-1.72, -0.02]. This indirect effect was found to be significant by using the Sobel test, $z = -2.05$, $p = .041$. This indicates that the relationship between ST vs NST and depression symptoms was fully mediated as the direct effect was found to be nonsignificant, $b = -0.71$, $t(344) = -1.10$, $p = 0.274$. The unstandardised indirect effect for ST versus NT was found not to be significant, $z = -1.78$, $p = 0.076$. This indicates that the relationship between ST versus NT and depression symptoms was not mediated by self-esteem. Figure 3 illustrates the standardised coefficients of mediation model. The covariate was significant in all paths of the mediation model, $p < .001$, which implies that anxiety symptoms explained some of the variance in self-esteem and depression symptoms.

Figure 3

Mediation Model where Trauma and Depression Symptoms are Mediated by Self-Esteem Controlled for Anxiety Symptoms

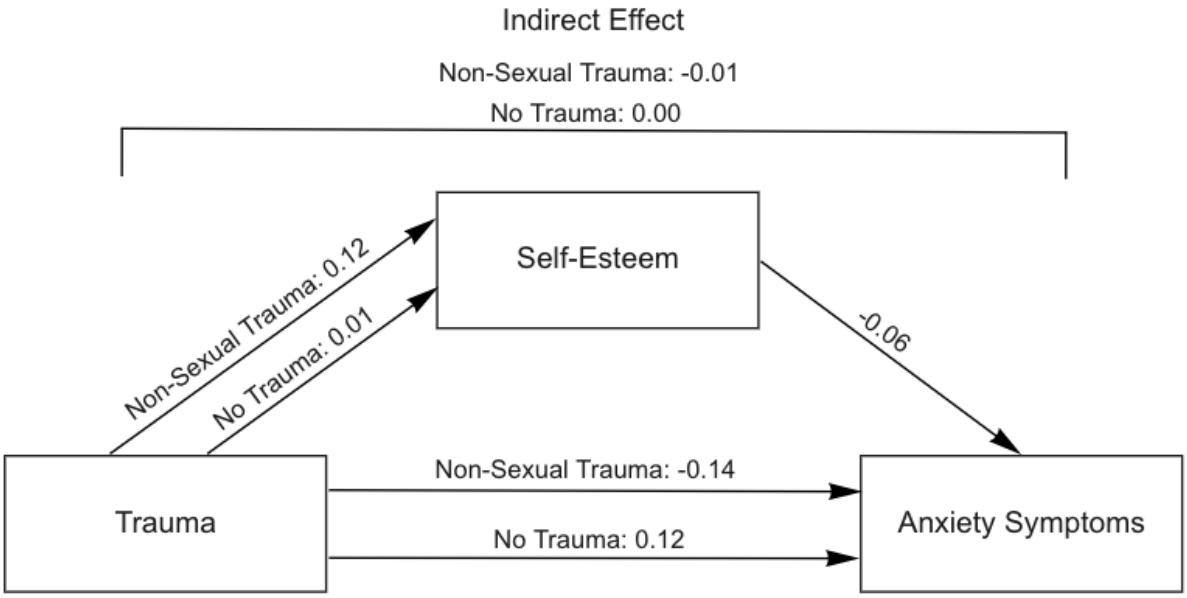


Note. Standardised regression coefficients for the relationship between trauma and depression symptoms mediated by self-esteem after controlling for anxiety symptoms. Trauma consisted for three conditions where sexual trauma was the reference group. * indicates p < .05 ** indicates $p < .001$.

When depression symptoms were included as a covariate, the total effect, direct effect and indirect effect were no longer significant. Figure 4 illustrates standardised coefficients of the mediation model. The covariate was found to be significant in all paths, $p < .001$. This implies that self-esteem is not uniquely explained by trauma and that anxiety symptoms are not uniquely explained by trauma or self-esteem when depression scores are considered. Thus, depression symptoms explained the variance in self-esteem and anxiety symptoms.

Figure 4

Mediation Model where Trauma and Anxiety Symptoms are Mediated by Self-Esteem Controlled for Depression Symptoms



Note. Standardised regression coefficients for the relationship between trauma and anxiety symptoms mediated by self-esteem after controlling for depression symptoms. Trauma consisted for three conditions where sexual trauma was the reference group. * indicates $p < .05$ ** indicates $p < .001$.