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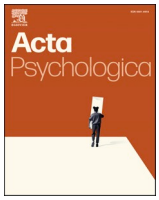

Do potentially traumatic events experienced by people in one's social circle affect one's own mental health and emotional support? Findings from a prospective population-based study

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ABSTRACT

Background: Adults may have individuals in their social circle who were recently exposed to potentially traumatic events (PTEs). The present study aims to examine if these adults are at increased risk for mental health problems and reduced emotional support.

Methods: Data was extracted from annual surveys of the prospective VICTIMS-study (2018–2025), conducted with the Dutch population-based LISS panel. We selected adult respondents who participated in two consecutive surveys (T1-T2, $N = 7933$). Stepwise multivariate logistic regression analyses were conducted with anxiety and depression (ADS) and PTSD symptomology (PTSS) related to PTEs respondents themselves were exposed to, and lack of emotional support at T2 as dependent variables, while controlling for especially pre-existing psychosocial problems at T1.

Results: Having individuals in one's social circle who were affected by PTEs did not increase the respondents' risk of PTSS. Repeatedly, significant effects on respondents' mental health disappeared after controlling for their pre-existing problems. Among non-affected male respondents, those with by PTEs affected individuals in their social circle more often lacked emotional support at T2. With respect to non-affected female respondents, those with affected individuals in their social circle significantly more often had severe ADS. Among by PTEs affected female respondents, those with affected individuals in their social circle more often had moderate-severe ADS. However, effects were small.

Conclusion: The negative effects of having individuals in one's social circle who were recently affected by PTEs on one's own mental health and emotional support were limited and small. Results underscore the importance of controlling for pre-existing problems.

1. Introduction

Each year, a significant portion of the general adult population is affected by potentially traumatic events (PTEs) such as violence, accidents, or serious threats (Type 1 trauma, Terr, 1991), although the prevalence of such events may vary across countries, regions and groups, and may fluctuate over time (cf. Benjet et al., 2016; Flores et al., 2020). A substantial body of research has demonstrated that individuals affected by PTEs may experience a range of mental health problems in the short, medium, and long term, such as symptoms of depression, anxiety, and post-traumatic stress disorder (PTSD). While severe psychological reactions often diminish over time, a minority of individuals (continue to) meet diagnostic criteria for mental disorders such as (co-morbid) PTSD, anxiety, and depression (Bonde et al., 2022; Brady et al., 2000; Jacobson & Newman, 2017; Koenen et al., 2017; Nolting et al., 2025; Oppo et al., 2024; Qassem et al., 2021; Watson & Bitsika, 2025). A recent study estimated an average annual cost exceeding £14,780 per person (Montgomery-Marks et al., 2025).

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Considerable attention has been paid to the role of the social environment in the mental health outcomes of recent trauma-affected individuals. Particularly, studies have examined how support from others may buffer or a lack of support exacerbate post-traumatic symptoms, analyzed the longitudinal interplay between posttraumatic stress symptoms and social support, or assessed how the provided support is experienced by affected individuals (Adams et al., 2006; Birkeland et al., 2017; Cohen & Wills, 1985; Kaniasty & Norris, 2008; Saan et al., 2022; Scott et al., 2020; Shallcross et al., 2016; van der Velden, Contino, et al., 2020; Yap & Devilly, 2004).

However, relatively little quantitative research among the general adult population has explored the *reciprocal* effects: that is, whether the mental health and received support of adult people is impacted when someone close to them is affected by a PTE. In other words, do by recent PTEs affected individuals (Type 1 Trauma), in turn, impact the mental health of adult people in their social circle such as relatives, friends, acquaintances, neighbors, and colleagues who were or were not affected by PTEs themselves in the same period (cf. Cook & McManus, 2024; Davies et al., 2023; Gregory et al., 2017; Richards & Weir, 2024). The large cross-sectional study by Cook and McManus (2024) is one of the very few quantitative population-based comparative studies on this topic. The authors assessed the effects on mental health of having close relatives who ever were seriously assaulted. Results showed that respondents with these relatives compared to respondents without such relatives significantly more often felt unsafe and harmed themselves, had a common mental disorder (CMD) in the past week, screened positive for PTSD, or had suicidal thoughts or attempts in the past year while controlling for demographics and socioeconomics. However, when controlling for whether respondents themselves have ever been a direct victim of violence, only feeling unsafe and CMD in the past week remained significant, and when adding lifetime adversities (including PTEs) to the list of control variables, only feeling unsafe remained significant. Based on their finding the authors concluded "*Their own direct experiences of victimization accounted for much of their worse mental health*" (Cook & McManus, 2024, p. 6). Importantly, their findings also raise the question whether having individuals in one's social circle who ever were seriously assaulted impacts the mental health of those who were also assaulted themselves more than those who were not assaulted themselves.

We are not aware of similar comparative population-based studies related to recent violence, serious threats, or accidents (including disasters and burns) individuals in one's social circle were exposed to, using non-affected comparison groups. Existing research has mainly focused on the mental health of specific groups such as witnesses of disasters compared to the victims (cf. Kar et al., 2013), parents of children exposed motor vehicle collisions and terrorist attacks (cf. Blix et al., 2024; Hiller et al., 2016), caregivers of burn survivors (cf. Dmitry et al., 2025) and of cancer patients (Geng et al., 2018), or family members of ICU patients with COVID-19 (Amass et al., 2022). Moreover, to the best of our knowledge to date no study examined the extent to which (lack of) social support is affected by having individuals in one's social circle who were recently exposed to PTEs, and no prospective studies have been conducted.

Learning about PTEs individuals in one's social circle were exposed to is often referred to as indirect trauma exposure (May & Wisco, 2016). Several concepts have been developed to describe the potential mental health sequelae in indirectly exposed individuals. Some concepts as vicarious trauma (Pearlman & Saakvitne, 1995), compassion fatigue (Figley, 1995), or traumatic countertransference (Herman, 1992) refer to experiences of (mental health) professionals as psychotherapists working with trauma victims. Other concepts as trauma contagion (Maltas & Shay, 1995) and trauma transmission (Danieli, 1998) describe experiences of intimate partners of victims of child sexual abuse or offspring of trauma survivors, respectively, while the term secondary traumatic stress (disorder) (Figley, 1995) refers less specifically to PTSD symptoms after confrontation with the traumatic experiences of another person.

A range of putative mechanisms may be considered for understanding how a traumatic event of another person or its (mental) health consequences might affect the social environment of this person. For instance, learning about such atrocities in one's direct environment may shatter assumptions such as that the world is a safe place (Janoff-Bulman, 1992). This might not only result in negative changes in mood and cognition; when the expected probability of similar events increases, PTSD-like symptoms as hyper-vigilance may occur. In their review of experiences of family members of emergency first responders with PTSD, May et al. (2023) summarize negative effects on interpersonal communication and intimacy and family roles which may add to the burden of care for affected relatives with (severe) PTE-related mental health problems (Cham et al., 2022; Lim et al., 2024).

Importantly, prior research has shown that pre-existing psychosocial problems, such as mental health, lack of emotional support and financial problems, are more prevalent among adults affected by recent PTEs compared to adults non-affected by these events in the same period (van der Velden et al., 2023). In addition, systematic reviews of prospective trauma-related studies showed that many post-trauma variables such as psychopathology -often considered causal effects of PTEs- were actually pre-existing variables (cf. Danese et al., 2017; DiGangi et al., 2013; Scheeringa, 2021). To obtain reliable estimates regarding the impact of having by PTE-affected relatives or other individuals in one's social circle (for readability hereafter abbreviated as 'individuals in one's social circle') on one's own mental health and social support, non-retrospective data on pre-existing mental health and social support are therefore crucial. Not controlling for these pre-existing variables increases the risk of inaccurate estimates, particularly the risk of over-estimating effects. For example, a higher prevalence of mental health and social support problems among respondents with individuals in their social circle affected by PTEs compared to respondents without such individuals in their social circle, might be incorrectly attributed to having these individuals in one's social circle, when it is in caused by pre-existing problems. To the best of our knowledge, such prospective studies among the general population on this topic are absent.

1.1. Research question

General aim of the present prospective 2-wave study (T1, T2) was to gain more insight in the reciprocal effects and improve the accuracy of estimates regarding the impact of having PTE-affected individuals in one's social circle by controlling for these pre-existing psychosocial problems of respondents.

The main research question was: To what extent are adult respondents who have individuals in their social circle who were recently affected by potentially traumatic events (PTEs), at greater risk for mental health problems and lack of emotional support at T2 compared to adults without such individuals in their social circle, when controlling for relevant pre-existing confounders at T1; is the prevalence of moderate-severe and severe anxiety and depression symptomatology (ADS), high PTSD-symptom levels (PTSS), and lack of emotional support higher at T2 than among adults without such individuals in one's social circle? The study covered a study period of one year. To eliminate the potential recall bias of PTEs as much as possible (cf. Karam et al., 2025), we examined PTEs among individuals in the social circle in the past 12 months (PTEs reported by respondents).

Adults affected by PTEs show a significantly higher prevalence of mental health problems compared to those not exposed during the same period. Furthermore, prior research indicates that individuals affected by PTEs are more likely to have relatives who also experienced such events (cf. Cook & McManus, 2024). To account for these dynamics, we analyzed the risk of mental health problems at T2 in a.) respondents who themselves were exposed to PTEs between T1 and T2, and b.) respondents who were not. Given the documented sex differences in post-trauma mental health outcomes such as PTSD symptomatology (Haering

et al., 2024; Olff et al., 2007; Tolin & Foa, 2006), we analyzed male and female respondents separately, rather than adding sex as a control variable in the analyses.

2. Method and materials

2.1. Procedures and participants

Data for the present study were drawn from eight annual surveys of the ongoing prospective VICTIMS-study that started in 2018 (surveys administered in March–April each year), using the Dutch Longitudinal Internet studies for the Social Sciences (LISS) panel (Scherpenzeel & Das, 2011). The LISS panel is based on a traditional probability sample from the Dutch population register, drawn by Statistics Netherlands (CBS). To ensure inclusiveness, individuals and households without internet access are provided with a computer and broadband connection. Respondents are compensated with an incentive of €15 per hour for their participation. A key feature of the LISS online survey design is that respondents can only proceed to a next question after answering the current one, resulting in extremely low levels of missing data.

In compliance with the General Data Protection Regulation (GDPR), all participants provided explicit digital consent for the use of their data for scientific and policy-relevant research. Regarding data security, Centerdata -which manages the LISS panel- is certified under ISO 27001 and NEN 7510, and the LISS data archive is CoreTrustSeal certified. The VICTIMS-study was approved by an Internal Review Board (IRB) at Centerdata, consisting of independent internal and external reviewers not involved in the development of the study (for further details, see Van der Velden et al., 2024).

The response of the eight surveys varied between 78.1% and 87.7%. We selected respondents who participated in two consecutive surveys with a 1-year time interval (T1 and T2) who were and who were not affected by PTEs between T1 and T2, starting with the 2018 and 2019 surveys (for the assessed PTEs see measures section below).

If a respondent completed more than two consecutive surveys, only the data of the first consecutive surveys were extracted. Additional participants were included if they participated in two consecutive surveys in later years (2019–2020 to 2024–2025). Of those who participated in a survey, between 77.6% and 87.5% participated in a consecutive survey. If respondents participated in more consecutive surveys, again only the data of the first two consecutive surveys were extracted. To obtain a maximum number of by PTEs affected respondents who participated in two consecutive surveys, by PTEs affected respondents were selected at last because they may not be affected by PTEs in other periods. For five respondents, sex was unknown (sex = other), and they were omitted from the total study sample for statistical reasons. This selection process yielded 7933 unique respondents.

2.2. Measures

2.2.1. Demographics

For sex (1 = male, 2 = female), age, marital status (1 = married, 2 = unmarried), education level (1 = low, 2 = medium, 3 = high), primary occupation (1 = employed, 2 = not employed), data were extracted the from monthly Background surveys, linked with T1. Since February 2022, regarding the variable sex besides male and female a third option "other" was added.

2.2.2. Potentially traumatic events individuals in one's social circle were exposed to

To gain insight in potentially traumatic events individuals in respondents social circle were exposed to between T1 and T2, at T2 the following question was asked (Van der Velden et al., 2024): "*Have any of the people who you interact with (so all of your family members, friends, acquaintances, neighbors, colleagues, and so on) experienced one or more traumatic events in the past 12 months?*" Respondents rated whether they had or had no individuals in their social circle (1 = yes, 2 = no) exposed to 1.) serious threat, 2.) traffic accident, 3.) other accident, calamity or disaster physical, 4.) violence (not by the (former) partner of the person concerned), 5.) physical violence, by the (former) partner of the person concerned, 6.) sexual violence/rape/sexual abuse, 7.) sexual harassment/sexual abuse via the internet, and 8.) medical accident/error. Respondents who answered all eight PTEs with "no" were considered not to have individuals in their social circle exposed to PTEs in the past 12 months. Respondents who rated one or more PTEs with "yes" were considered to have individuals in their social circle who were exposed to PTEs in the past 12 months. Respondents were also asked if individuals in their social circle were exposed to theft/fraud and burglary in the home, but given the present focus on PTEs these two items were omitted.

2.2.3. Potentially traumatic events respondents themselves were exposed to

Exposure to potentially traumatic events (PTEs) and stressful life events (SLEs) in the 12 months before T2 were assessed by a list of 21 events with yes-no answer categories, items that were derived from existing questionnaires on PTEs and other stressful life events (Van der Velden et al., 2024). Respondents were explicitly offered the opportunity to report another drastic event they encountered in the past 12 months that was not listed. The answers were coded into new or existing categories. In line with the DSM5, in the present study the following events were defined as PTEs: (i) physical violence, including sexual violence/sexual abuse (not online), online sexual violence/sexual abuse, robbery, physical violence but not by own partner, and/or physical violence by own partner; (ii) accidents, including traffic accidents, disasters, fire, medical errors; and (iii) serious threats, including serious threats without the use of physical violence (not online), and/or online serious threats without use of physical violence.

2.2.4. Stressful life events in past 12 months

Besides the aforementioned PTEs, the list of 21 items included burglary, theft/fraud (not via the internet), online theft/fraud (via the internet), contraction of a serious infection (e.g. HIV, AIDS), development of a serious physical ailment (e.g. cancer, heart attack), expected and unexpected death of a loved one (e.g. partner, family member, friend), and expected and unexpected death of a colleague. In addition, it included non-PTEs events described by the respondents themselves such as conflicts and divorce, serious (mental) health problems of individuals in their social circle, problems with pregnancy, loss of contact with significant others, and being fired. We distinguished respondents not reporting any SLE (1 = no SLEs) and respondents reporting one or more SLEs (2 = one or more SLEs).

2.2.5. Anxiety and depression symptoms

Anxiety and depression symptomatology (ADS) was assessed at T1 and T2 with the 5-item Mental Health Inventory (MHI-5; Means-Christensen et al., 2005; Ware Jr. & Sherbourne, 1992). Respondents were asked to rate their mental health during the past month on 6-point Likert scales (0 = never to 5 = permanently). Following the instructions of the MHI-5, after recoding the three negatively formulated items, the total scores were computed and multiplied by four (to arrive at a 0–100 scale). Lower scores indicate higher symptoms levels. A cut-off of $\leq$60) was used to identify respondents with moderate-severe ADS and a cut-off of $\leq$44 for severe ADS (Perenboom et al., 2000). Cronbach's alpha MHI-5^{T1} was 0.875 and MHI-5^{T2} was 0.876.

2.2.6. High PTSD symptoms levels

We next assessed PTSD symptomatology related to the PTEs the respondents themselves were exposed to. High PTSD symptoms (PTSS) levels during the past month (abbreviated as PTSS) at T1 and T2 were, neglecting the time criterion of PTSD, investigated using the 8-item version of PTSD Checklist for DSM-5 (PCL-5; Price et al., 2016) that uses a 5-point Likert scale (0 = not at all to 4 = extremely). The checklist

examines symptoms across the four symptom clusters of PTSD (intrusive memories, avoidance, negative changes in mood and cognition, and changes in physical and emotional reactions). To identify participants with high PTSS, the cut-off of ≥13 for probable PTSD was applied (Geier et al., 2020; Pereira-Lima et al., 2019). Cronbach's alpha PCL-5^{T1} was 0.932 and PCL-5^{T2} was 0.936. In case respondents were affected by two or more PTEs, respondents were asked to take the most stressful PTE in mind when filling in the PCL. For respondents who themselves were not exposed to the assessed PTEs, PTSS scores related to PTEs are thus not available.

2.2.7. Lack of emotional support

Lack of emotional support at T1 and T2 was examined using the 8-item subscale Lack of emotional support of the Social Support List-Discrepancy (SSL—D; Bridges et al., 2002; van Sonderen, 2012). Respondents were asked to take people with whom they interact in mind when answering the questions. The SSL-D items apply 4-point Likert scales (1 = I miss it, I would like it to happen more often to 4 = It happens too often, it would be nice if it happened less often). For the present study, total scores were subtracted from the total maximum scores (32) whereby higher scores reflect higher levels of lack of emotional support. Cronbach's Alpha SSL-D^{T1} was 0.883 and SSL-D^{T2} was 0.884.

2.2.8. Financial problems

Financial problems at T1 were examined with the brief Problems and Help Inventarisation List (Van der Velden et al., 2024). The PHIL examines various problems varying from physical problems to financial problems (1 = yes, 2 = no) with the following instruction "People can experience distinct types of problems. Please indicate for each of the problem types listed below whether you experience these problems or not." For the present study, the data on financial problems was extracted.

2.3. Statistical analyses

Differences in the distribution of the characteristics such as demographics and pre-existing psychosocial problems between the four male and between the four female subgroups were assessed using the chi-square test.

A series of stepwise multivariate logistic regression analyses (MLRA) was conducted to examine the extent to which respondents with individuals in their social circle affected by PTEs in the past 12 month, were more at risk for mental health problems and lack of emotional support at T2 compared to respondents without such individuals in their social circle.

The first set of MLRAs were conducted among respondents who *were themselves not* affected by PTEs between T1 and T2 with moderate ADS, severe ADS, and lack of support as the dependent variable. At Step 1, only the variable "PTEs among individuals in the social circle" (1 = no individuals in one's social circle exposed to PTEs, 2 = one or more individuals in one's social circle exposed to PTEs) was entered as predictor. At Step 2 the following biographic variables were added as predictors: age, marital status, education level, and primary occupation at T1, period survey, and stressful life between T1 and T2. At Step 3 (full model among non-affected respondents), the following pre-existing psychosocial problems were entered: probable PTSD at T1 (related to PTEs in 12 months before T1), moderate-severe ADS at T1, lack of emotional support at T1 and financial problems at T1.

The stepwise MLRAs were then repeated among respondents who *were themselves* affected by PTEs between T1 and T2 with the same dependent variables plus PTSS. In these MLRA Step 4 (full model among affected respondents) was added in which the following PTE-characteristics were entered: time since the (most recent) PTEs and stress during this PTE.

Because there is no cut-off score available to distinguish respondents with relatively low and high levels of lack of emotional support, we first applied a cut-off score of ≥14 reflecting about 17% highest scores (van der Velden, Contino, et al., 2020). Based on this cut-off score, scores were recoded into relatively low and high lack of emotional support. All MLRA were repeated using a higher cut-off score of ≥15 reflecting about 13% highest scores.

All regression analyses were conducted separately for male and female respondents to account for potential sex differences in associations. IBM SPSS 28 was used to aggregate the data and conduct the statistical analyses.

3. Results

3.1. Characteristics study samples

Table 1 presents the characteristics at T1 of the eight male and female study samples. They show significant differences between subgroups within both male and female subgroups in the distribution of demographics (age, education level), mental health problems (ADS and PTSS), lack of emotional support, financial problems, and stressful life events between T1 and T2. Notably, the male and female subgroups that had experienced a potentially traumatic event (PTE) themselves and had individuals in their social circle affected by PTEs between T1 and T2 showed the highest prevalence of pre-existing mental health problems (ADS and PTSS), lack of emotional support, financial problems at T1, and stressful life events between T1 and T2. Additional analyses showed that affected males compared to non-affected males more often had individuals in their social circle exposed to PTEs between T1 and T2 (22.4% versus 9.8%, $\chi^2(1) = 88.3, p < 0.0.001$). Similar differences were observed among females (24.6% versus 11.1%, $\chi2(1) = 105.3$, $p < 0.001$).

In Table 2 an overview is provided about which events the individuals in respondents social circle, according to respondents' reports, were exposed to between T1 and T2. Chi-square tests did not reveal significant differences between males and females who themselves were exposed to PTEs nor between males and females who themselves were not exposed to PTEs between T1 and T2.

3.2. Differences in mental health and support among males

The results of the stepwise MLRAs among male respondents who themselves were not affected by PTEs between T1 and T2, and male respondents who themselves were affected by PTEs between T1 and T2 are presented in Table 3.

Within the subgroup of males who were not affected by PTEs (No PTEs between T1-T2) no significant differences in moderate-severe and severe ADS were observed between those with and those without individuals in their social circle affected by PTEs between T1 and T2. However, within this subgroup those with individuals in their social circle affected by PTEs significantly more often lacked emotional support than respondents who did not have individuals in their social circle: differences remained significant after Step 3.

With respect to the subgroup of males who were affected by PTEs (PTEs between T1 and T2), respondents with individuals in their social circle affected by PTEs between T1 and T2 significantly more often suffered from moderate-severe ADS, severe ADS, and high PTSS than males without such individuals in their social circle according to Step 1 and Step 2. However, when adding pre-existing psycho-social problems at T1 (PTSS at T1 related to PTEs in 12 months before T1, ADS at T1, lack of emotional support at T1 and financial problems at T1) to the list of control variables at Step 3, the differences were no longer significant.

Applying the higher cut-off score for lack of emotional support (scores ≥15) did not change the results, except for lack of emotional support at T2 among the subgroup of males who were not affected by PTEs: non-affected males with and without individuals in their social circle affected by PTEs did not differ significantly in (a higher level of)

Table 1
Characteristics male and female study samples.

	PTEs between T1 and T2 among males (N = 3582)				PTEs between T1 and T2 among females (N = 4351)			
	No		Yes		No		Yes	
	PTEs in one's social circle				PTEs in one's social circle			
	No (n = 2531)	Yes (n = 275)	No (n = 602)	Yes (n = 174)	No (n = 3105)	Yes (n = 389)	No (n = 638)	Yes (n = 219)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Age at T1								
- 18–34 year	555 (21.9)	76 (27.6)	110 (18.3)	38 (21.8)**	801 (25.8)	137 (35.2)	174 (27.3)	67 (30.6)**
- 35–49 years	537 (21.2)	52 (18.9)	124 (20.6)	48 (27.6)	668 (21.5)	81 (20.8)	161 (25.2)	54 (24.7)
- 50–64 years	661 (26.1)	80 (29.1)	185 (30.7)	51 (29.3)	859 (27.7)	99 (25.4)	163 (25.5)	54 (24.7)
- 65 years or older	778 (30.7)	67 (24.4)	183 (30.4)	37 (21.3)	777 (25.0)	72 (18.5)	140 (21.9)	44 (20.1)
Married at T1	1340 (52.9)	124 (45.1)	312 (51.8)	85 (48.9)	1456 (46.9)	171 (44.0)	253 (39.7)	88 (40.2)**
Education level at T1								
- Low	593 (23.4)	35 (12.7)	131 (21.8)	39 (22.4)**	846 (27.2)	61 (15.7)	144 (22.6)	51 (23.3)***
- Medium	851 (33.6)	110 (40.0)	212 (35.2)	63 (36.2)	1104 (35.6)	133 (34.2)	245 (38.4)	77 (35.2)
- High	1087 (42.9)	130 (47.3)	259 (43.0)	72 (41.4)	1155 (37.2)	195 (50.1)	249 (39.0)	91 (41.6)
Employed	1386 (54.8)	163 (59.3)	352 (58.5)	96 (55.2)	1508 (48.6)	212 (54.5)	318 (49.8)	99 (45.2)
Life events T1–T2	854 (33.7)	104 (37.8)	279 (46.3)	110 (63.2)***	1090 (35.1)	161 (41.4)	279 (43.7)	144 (65.8)***
ADS at T1	446 (17.6)	53 (19.3)	144 (23.9)	68 (39.1)***	756 (24.3)	110 (28.3)	228 (35.7)	96 (43.8)***
High PTSS at T1[a]	26 (1.0)	3 (1.1)	9 (1.5)	10 (5.7)***	41 (1.3)	6 (1.5)	29 (4.5)	27 (12.3)***
Financial problems at T1	151 (6.0)	22 (8.0)	69 (11.5)	35 (20.1)***	211 (6.8)	29 (7.5)	81 (12.7)	39 (17.8)***
Lack emo support at T1	373 (14.7)	46 (16.7)	126 (20.9)	50 (28.7)***	538 (17.3)	69 (17.7)	160 (25.1)	63 (28.8)***
Stress during PTE[b]	n.a.	n.a.	189 (31.4)	65 (37.4)	n.a.	n.a.	331 (51.9)	122 (55.7)
Time PTE								
- 1 week–2 months ago	n.a.	n.a.	227 (37.7)	77 (44.3)	n.a.	n.a.	234 (36.7)	77 (35.2)
- 3–6 months ago	n.a.	n.a.	206 (34.2)	45 (25.9)	n.a.	n.a.	210 (32.9)	68 (31.1)
- 7–12 months ago	n.a.	n.a.	169 (28.1)	52 (29.9)	n.a.	n.a.	194 (30.4)	74 (33.8)

PTEs = potential traumatic event (in case of two of more PTEs, the most stressful one). ADS = moderate-severe anxiety and depression symptoms. PTSS = high PTSD symptom levels.
n.a. = not applicable. The * refers to the *p*-value of the chi-square test assessing differences in characteristics between the four male and between the four female subgroups.
[a] Related to (most stressful) PTEs in 12 months before T1.
[b] Much or very much stress.
** $p < 0.01$.
*** $p < 0.001$.

Table 2
Individuals in ones' social circle who were affected by PTEs in past year.

PTEs individuals in ones' social circle	Sex respondents			
	Males	Females	Males	Females
	PTEs between T1 and T2			
	No (n = 275)	No (n = 389)	Yes (n = 174)	Yes (n = 219)
	n (%)	n (%)	n (%)	n (%)
Seriously threatened	37 (13.5)	68 (17.5)	63 (36.2)	61 (27.9)
Traffic accident	129 (46.9)	154 (39.6)	77 (44.3)	86 (39.3)
Disaster, calamity	59 (21.5)	93 (23.9)	37 (21.3)	56 (25.6)
Physical violence, not by partner	18 (6.5)	27 (6.9)	23 (13.2)	24 (11.0)
Physical violence, by partner	14 (5.1)	20 (5.1)	15 (8.6)	22 (10.0)
Sexual violence	10 (3.6)	24 (6.2)	12 (6.9)	13 (5.9)
Medical error	51 (18.5)	67 (17.2)	43 (24.7)	51 (23.3)

PTEs = potential traumatic event (in case of two of more PTEs, the most stressful one). No significant differences were observed between males and females.

lack of support.

3.3. Differences in mental health and support among females

In Table 4 the results with respect to female respondents are shown. Among the non-affected subgroup (No PTEs between T1-T2) females with individuals in their social circle affected by PTEs between T1 and T2 had significant more often moderate-severe and severe ADS at T2 than females without such individuals in their social circle according to Step 1 and 2. Again, when controlling for pre-existing psycho-social problems at Step 3, the difference was no longer significant except for severe ADS. No significant difference was observed with respect to high lack of emotional support.

Regarding the female PTEs subgroup, the subgroup of females with individuals in their social circle who were affected by PTEs had significantly more often moderate-severe ADS according to Step 4 which also controlled for pre-existing psycho-social problems and PTEs characteristics [stress during (most stressful) PTEs and time since PTE], but not severe ADS. In addition, females with such individuals in their social circle compared to females without such individuals in their social circle significantly more often had high PTSD symptom levels according to Step 2, but no longer when controlling for pre-existing psycho-social problems (Step 3). No significant effect for lack of emotional support was observed and using the higher cut-off score for lack of emotional support yielded the same results.

For an overview of the associations (aOR) between all entered predictors and the dependent variables among males and females see supplements 1 to 4.

4. Discussion

The aim of the present prospective study was to gain insight into the extent to which adults with individuals in their social circle (family, friends, acquaintances, neighbors and colleagues) who were recently affected by potentially traumatic events (PTEs) compared to respondents without such individuals in their social circle, were more at risk for mental health problems and lack of emotional support while taken relevant confounders such as pre-existing psychosocial problems into account. For this purpose, a prospective 1-year two-wave study (T1-T2) was conducted. Males and females with and without affected

Table 3
Results stepwise multivariate logistic regression analyses among males.

Males	n (%)	Step 1	Step 2	Step 3	Step 4
		OR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
No PTEs between T1-T2					
Moderate-severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	439 (17.3)	1	1	1	
- PTEs in social circle	54 (19.6)	1.16 (0.85–1.60)	1.14 (0.83–1.57)	1.08 (0.73–1.58)	
Severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	113 (4.5)	1	1	1	
- PTEs in social circle	16 (5.8)	1.32 (0.77–2.27)	1.27 (0.74–2.20)	1.21 (0.65–2.22)	
Lack of emotional support					
- No PTEs in social circle (ref.)	347 (13.7)	1	1	1	
- PTEs in social circle	52 (18.9)	1.47 (1.06–2.03)*	1.54 (1.11–2.14)**	1.50 (1.05–2.15)*	
PTEs between T1 and T2					
Moderate-severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	146 (24.3)	1	1	1	1
- PTEs in social circle	73 (42.0)	2.26 (1.58–3.22)***	2.01 (1.38–2.92)***	1.53 (0.96–2.45)	1.49 (0.93–2.40)
Severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	48 (8.0)	1	1	1	1
- PTEs in social circle	27 (15.5)	2.12 (1.28–3.51)**	1.88 (1.11–3.18)*	1.27 (0.01–2.32)	1.23 (0.66–2.29)
High PTSS at T2					
- No PTEs in social circle (ref.)	76 (12.6)	1	1	1	1
- PTEs in social circle	45 (25.9)	2.41 (1.59–3.66)***	2.10 (1.35–3.26)**	1.58 (0.97–2.60)	1.63 (0.97–2.74)
Lack of emotional support					
- No PTEs in social circle (ref.)	112 (18.6)	1	1	1	1
- PTEs in social circle	55 (31.6)	1.38 (1.07–1.79)*	1.27 (0.97–1.66)	1.09 (0.81–1.48)	1.09 (0.80–1.48)

Step 1: Odds ratio (OR) with group as predictor.
Step 2: aOR is OR adjusted for variable Step 1 plus age, marital status, education level, primary occupation, period survey, stressful life events between T1 and T2.
Step 3: aOR is OR adjusted for variables Step 2 plus PTSS at T1 related to PTEs in 12 months before T1, ADS at T1, lack of emotional support at T1 and financial problems at T1.
Step 4: aOR is OR adjusted for variables Step 3 plus time and stress during PTE.
ref. = reference category.
PTEs = affected by potentially traumatic events between T1 and T2.
No PTEs in social circle = no person in social circle (family members, friends, acquaintances, neighbors, colleagues) was affected by PTEs between T1 and T2 according to respondents.
PTEs in social circle = one or more individuals in social circle (family members, friends, acquaintances, neighbors, colleagues) who were affected by PTEs between T1 and T2 according to respondents.
High PTSS = high PTSD symptom levels.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 4
Results stepwise multivariate logistic regression analyses among females.

Females	n (%)	Step 1	Step 2	Step 3	Step 4
		OR (95% CI)	aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
No PTEs between T1-T2					
Moderate-severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	724 (23.3)	1	1	1	
- PTEs in social circle	113 (29.0)	1.35 (1.07–1.70)*	1.29 (1.01–1.65)*	1.28 (0.97–1.68)	
Severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	199 (6.4)	1	1	1	
- PTEs in social circle	39 (10.0)	1.63 (1.13–2.33)**	1.58 (1.09–2.29)*	1.58 (1.06–2.36)*	
Lack of emotional support					
- No PTEs in social circle (ref.)	468 (15.1)	1	1	1	
- PTEs in social circle	66 (17.0)	1.15 (0.87–1.53)	1.15 (0.86–1.52)	1.12 (0.82–1.52)	
PTEs between T1 and T2					
Moderate-severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	247 (38.7)	1	1	1	1
- PTEs in social circle	115 (52.5)	1.75 (1.28–2.39)***	1.52 (1.10–2.10)*	1.49 (1.02–2.18)*	1.49 (1.02–2.20)*
Severe anxiety and depression symptoms at T2					
- No PTEs in social circle (ref.)	109 (17.1)	1	1	1	1
- PTEs in social circle	53 (24.2)	1.55 (1.07–2.25)*	1.31 (0.88–1.94)	1.17 (0.76–1.80)	1.18 (0.76–1.84)
High PTSS at T2					
- No PTEs in social circle (ref.)	149 (23.4)	1	1	1	1
- PTEs in social circle	77 (35.2)	1.78 (1.28–2.48)***	1.48 (1.04–2.11)*	1.35 (0.91–1.99)	1.35 (0.91–2.01)
Lack of emotional support					
- No PTEs in social circle (ref.)	168 (26.3)	1	1	1	1
- PTEs in social circle	58 (26.5)	1.01 (0.71–1.43)	0.94 (0.65–1.36)	0.80 (0.53–1.22)	0.80 (0.53–1.22)

Step 1: Odds ratio (OR) with group as predictor.
Step 2: OR adjusted for variable Step 1 plus age, marital status, education level, primary occupation, period survey, stressful life events between T1 and T2.
Step 3: OR adjusted for variables Step 2 plus PTSS at T1 related to PTEs in 12 months before T1, ADS at T1, lack of emotional support at T1 and financial problems at T1.
Step 4: OR adjusted for variables Step 3 plus time and stress during PTE.
ref. = reference category.
PTEs = affected by potentially traumatic events between T1 and T2.
No PTEs in social circle = no person in social circle (family members, friends, acquaintances, neighbors, colleagues) was affected by PTEs between T1 and T2 according to respondents.
PTEs in social circle = one or more individuals in social circle (family members, friends, acquaintances, neighbors, colleagues) who were affected by PTEs between T1 and T2 according to respondents.
High PTSS = high PTSD symptom levels.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

individuals in their social circle were compared within the subgroup of respondents who themselves were not affected by PTEs and within the subgroup of respondents who themselves were affected by PTEs between T1 and T2.

In sum, having individuals in one's social circle who were recently affected by PTE was associated with a slight increase in the risk of lacking support among non-affected males and a slight increase in the risk of ADS among both affected and non-affected females, after accounting for pre-existing problems. For instance, among males who themselves were not affected by PTEs those with individuals in their social circle exposed to PTEs were not more likely to show (moderate-) severe ADS symptoms than males without affected individuals in their social circle. Among female participants, both themselves affected or not affected by PTE, no significant effects of having a PTE exposed person in social circle on lack of emotional support were detected.

Among males who themselves were affected by PTEs who had affected individuals in their social circle, initially significant differences in the prevalences of (moderate-) severe ADS, high PTSS levels, and lack of emotional support at T2 were not significantly elevated any more after controlling for all control variables, as compared to male participants without affected individuals in their social circle. The observation that the significance of differences between participants with and without PTE affected individuals in their social circle vanished after including the control variables into the regression model was observed also in non-affected (with respect to moderate-severe ADS) and affected (with respect to severe ADS and high PSS levels) females.

The only difference between male participants with and without PTE affected individuals in their social circle, which remained significant even after controlling for all biographic variables and pre-existing psychosocial problems, emerged for those who themselves were not affected by PTEs with respect to a significantly elevated probability to report a lack of emotional support. However, given the aOR of 1.50 the negative positive effect of having individuals in their social circle affected by PTEs on emotional support must be considered small (cf. Maher et al., 2013).

The only difference between female participants with and without PTE affected individuals in their social circle, that remained significant even after controlling for all biographic variables and pre-existing psychosocial problems, emerged for severe ADS (in those who themselves were not affected by PTEs) and moderate-severe ADS (in those who themselves were affected by PTEs). Again, with aORs of 1.58 and 1.49, respectively, these need to be considered small (cf. Maher et al., 2013). With respect to the possible underlying mechanisms of these effects, besides the role of shattered assumptions, future research is warranted.

We would like to suggest, among others, exploring the role of affective (or pre-reflective) and cognitive (reflective) empathy in this perspective (cf. Christov-Moore et al., 2014), and the effects these forms of empathy have on how male and female respondents socialize with (male and female) individuals in their social circle who were recently affected by PTEs. At this moment we lack clear indications to formulate hypotheses because, among others, we did not ask specific questions about respondents' thoughts about why and how having by PTEs affected individuals in their social circle affected their lack of emotional support. Potential effects of non-disclosed PTEs could not be considered as the participants' social circles were not directly surveyed. However, we expect that qualitative trauma-related research on this topic may offer important insights to guide this process.

While females were more likely to exhibit ADS, males partly showed a higher lack of emotional support. With regard to these different outcomes in the present study, it is interesting to note that a similar pattern is partly evident among victims themselves showing that after PTEs females not only more often suffer from PTSD symptomatology than males (Haering et al., 2024; Olff et al., 2007; Tolin & Foa, 2006), but also from anxiety and depression (e.g., Kofman et al., 2024; Mundy et al., 2020). Also, several studies on PTE or SLE have reported lower levels of social support and social recognition in male as compared to female participants (Angehrn et al., 2022; Dalgard et al., 2006; van der Velden, Komproe, et al., 2020). One explanation for this parallel could be that the underlying mechanisms of risk factors for psychopathology and psychosocial problems may be similar in victims of PTEs and in individuals in the social circle of victims.

Interestingly, the present findings in the female sub-sample are partly in line with the only previous population-based study on this topic (Cook & McManus, 2024), which also found a small increased risk for past week CMD among respondents who had close individuals in their social circle who were victims of serious assaults (before controlling for other adversities).

The results of the conducted stepwise multivariate logistic regression analyses demonstrate the importance of controlling for pre-existing psychosocial problems. For example, if these variables are not controlled for, the results among males who themselves were affected by PTEs could easily misinterpreted as (strong) evidence that having people in one's social circle who were affected by PTEs increases the risk for moderate and severe ADS, and high PTSD symptom (PTSS) levels. In other words, the higher risk for psychopathology and lack of support could mistakenly be attributed to having people in one's social circle who were recently exposed to PTEs. Interestingly, among both male and female respondents the prevalence of pre-existing psychosocial problems at T1 and life events between T1-T2 was the highest among respondents affected by PTEs themselves with individuals in their social circle who were exposed to PTEs after T1 (between T1 and T2).

In line with the findings of Cook and McManus (2024), affected males and females compared to their non-affected counterparts about two times more often had individuals in their social circle exposed to PTEs in the past 12 months (cf. Mullet et al., 2024). In other words, a significant minority of the by PTEs affected adults seem to live in or are a part of social circles or communities where serious threats, accidents and (sexual or partner) violence are clearly present given the fact that we focused on PTEs in (only) the past year. Future studies are warranted to examine the relationships with recent or life-time multiple PTEs (cf. Karam et al., 2014).

The negative effects of having individuals in one's social circle who were recently affected by PTEs on one's own mental health (anxiety and depression, and PTSD symptomatology) and emotional support were limited and, if present, small. Our findings, and especially after controlling for pre-existing psychosocial problems, may therefore serve as a serious warning. When individuals in one's social circle are affected by these types of PTEs and individuals themselves suffer from severe mental health problems, this should not automatically be viewed or labelled as vicarious trauma, traumatic countertransference, trauma contagion and/or trauma transmission (cf. DiGangi et al., 2013).

4.1. *Strength and limitations*

The use of a traditional probability population-based sample, the large sample size enabling separate analyses among adult males and females, the prospective study design with non-retrospectively collected data on pre-existing psychosocial problems, and the stepwise multivariate logistic regression analyses controlling for relevant confounders are the major strengths of the present study. To the best of our knowledge, this is the first prospective study on the effects of having individuals in ones' social circle recently affected by PTEs on one's own mental health and social support.

Nevertheless, the following limitations need to be mentioned. In this study, individuals in respondents' social circle included “all of their family members, friends, acquaintances, neighbors, colleagues, and so on” (individuals with whom they interact, see Section 2.2.2). Although we did not assess PTSD symptoms in relation to PTEs experienced by these individuals, it is important to note that the PTSD stressor criteria in the current DSM and ICD (DSM-5 and ICD-11) with respect to what happened to individuals in the social circle are more restricted (APA, 2013; WHO, 2019). The DSM limits such individuals to close family

members or friends (in case of actual or threatened death, this needs to be violent or accidental), and the ICD limits such individuals to loved ones (in case of the actual or threatened death of loved ones, this needs to be violent, sudden or unexpected). The examined PTEs individuals in the social circle were exposed to, according to the respondents, are in line with the PTSD stressor criteria of the current DSM en ICD. The post-event trauma studies by Kar et al. (2013), Blix et al. (2024), Hiller et al. (2016), Dmitry et al. (2025), Geng et al. (2018), Amass et al. (2022) were all devoted to the mental health of close others such as caregivers and family members. Future research is warranted to examine the extent to which having affected individuals in the social circle who are very close compared to individuals who are less close, is associated with higher prevalence of ADS, PTSS and lack of support. With respect to the (ongoing) discussion about the PTSD stressor criteria we would like to refer to the studies by Georgescu et al. (2025) and by Gradus and Galea (2022).

In addition, we lacked data on *when* individuals in the social circle of the respondents were affected by the assessed potentially traumatic events (PTEs) between T1 and T2. Moreover, we do not have data on objective event outcomes (e.g., were individuals in the social circle injured during an accident moderately or life-threatening) or on how these events affected the mental health of the individuals in the social circle themselves, and the help-giving status of the respondents (Davies et al., 2023).

We focused on recent violence, accidents, and serious threats (in the past 12 months), (Type I traumatic events, Terr, 1991). Our study does not provide insight into trauma patterns resulting from recent war-related experiences, such as ongoing bombings, shootings, severe injuries, and deaths, the (traumatic) loss of significant others, and severe physical illness-related events such as cancer. However, we controlled for the possible effects of stressful life-events between T1 and T2 which included the (un)expected loss of a significant other. Our study focused on adults in the general population and individuals in their social circle and not on professionals who provide support, care or treatment to by PTEs affected individuals (cf. Meeker et al., 2025; Sabin-Farrell & Turpin, 2003). In addition, homicide was not explicitly assessed in the PTE questionnaire because of the relatively small number of homicides in the Netherlands (fewer than 150 per year during the study period, CBS, 2025). Of the about 8000 respondents, three respondents of the PTE group reported the murder of a neighbor/person in their close neighborhood. One respondent mentioned this PTE in the open question (murder of son) but in relation to the appeal of the convicted perpetrator suggesting that this PTE took place before T1 (cf. Connolly & Gordon, 2015; Lewis et al., 2025). High PTSD-, anxiety and depression symptom levels were examined using standardized self-report questionnaires. Clinical interviews assessing PTSD, generalized anxiety and major depression would have enriched our study (cf. Hyland & Shevlin, 2024). We conducted a one year two-wave study. Future multi-wave studies are warranted to examine the effects of having individuals in the social circle affected by PTEs on the longer term.

Despite our large sample size, we were unable to examine the risk of mental health problems among male and female respondents affected by specific PTEs and with individuals in one's social circle affected by the same specific PTE, due to small subgroup sizes.

Respondents were asked whether any individual in their social circle had been affected by the assessed PTEs in the past 12 months. It is possible, however, that one or more individuals in their social circle experienced such events without the respondent's knowledge, for instance because of person's decision not to disclose their experiences to our respondents. We did not examine youngers (cf. Copeland et al., 2007; Zimmerman & Posick, 2016). Findings may not be applicable to other PTEs such as recent serious or life-threatening diseases like cancer among individuals in one's social circle (Geng et al., 2018; Jolliffe et al., 2019; Roberts et al., 2012) and prospective studies among these subgroups are warranted.

5. Conclusions

We found no indications that having those individuals in one's social circle increases the risk of high PTSD symptom levels among males and females who themselves were affected by PTEs in the same period (past year). Our results clearly demonstrate that studies on this topic that do not control for non-retrospective assessed pre-existing psychosocial problems are at considerable risk to over-estimate the effects of having individuals in one's social circle recently affected by PTEs and misinform care-professionals, policymakers, and general public.

CRediT authorship contribution statement

Peter G. van der Velden: Writing – review & editing, Writing – original draft, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Carlo Contino:** Writing – review & editing, Methodology, Investigation, Conceptualization. **Simon Kempe:** Writing – review & editing, Methodology, Investigation, Conceptualization. **Marcel Das:** Writing – review & editing, Methodology, Investigation, Funding acquisition, Conceptualization. **Lutz Wittmann:** Writing – review & editing, Methodology, Investigation, Formal analysis, Conceptualization.

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Declaration of competing interest

Authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.actpsy.2026.107136.

Data availability

Researchers can download all anonymized archived datasets which were collected, free of charge, after signing the user statement (see https://www.dataarchive.lissdata.nl/).

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