Does pre-event lack of emotional support increase the risk of post-event PTSD, anxiety, depression symptoms and lack of support? A comparative population-based study among victims of threat and violence

Peter G. van der Velden[a,b,*], Carlo Contino[c], Miquelle Marchand[a], Marcel Das[a], Henk Schut[d]

[a] CentERdata, Tilburg, the Netherlands
[b] Tilburg University's Network on Health and Behavior (Nethlab), Tilburg, the Netherlands
[c] Victim Support Foundation (FSH), The Hague, the Netherlands
[d] Clinical Psychology, Faculty of Social and Behavioral Sciences, Utrecht University, the Netherlands

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ABSTRACT

Our knowledge about the effects of perceived emotional support on PTSD, anxiety and depressive symptoms after serious threat and violence is primarily based on post-event studies. Very little is known about the extent to which (1) victims lacking pre-event emotional support are more at risk of post-event symptoms and lack of post-event support than victims with pre-event emotional support, and (2) victims with pre-event emotional support and victims lacking emotional support are more at risk of post-event anxiety and depressive symptoms than nonvictims with similar pre-event support levels. For this purpose, we conducted a 2-wave prospective study (VICTIMS) using the Dutch population-based longitudinal LISS panel. Multivariate logistic regression analyses were conducted, controlling for pre-event demographics, symptoms, and physical, work-related and financial problems. As hypothesized, victims ($N^{victims\ total} = 187$) lacking pre-event support more often had high post-event PTSD, anxiety and depressive symptoms than victims with pre-event support. No significant differences were found between victims and nonvictims with pre-event emotional support ($N^{nonvictims\ total} = 2,828$, not exposed to any event). Since victims and nonvictims with pre-event support did not differ in post-event symptoms and support, the findings offer strong evidence for the buffering hypothesis of emotional support.

1. Introduction

The effects of serious threat and physical, sexual and partner violence on the mental health of adult victims are well-documented. During the first days, weeks or months, many victims suffer from stress symptoms such as anxiety, fear of re-victimization, anger, re-experiencing the event, avoidance reactions, and feeling depressed. A variable minority of the victims of these interpersonal potentially traumatic events (PTEs) suffer from post-event mental disorders such as PTSD and depression, and generally more often so than after non-interpersonal PTEs such as traffic accidents and disasters (Dworkin, 2018; Kessler et al., 2017; Leskela et al., 2002; Norris & Kaniasty, 1994; Orth & Wieland, 2006; Trevillion et al., 2012; Weaver & Clum, 1995).

Social support may, as it fits the victim's needs, reduce the risk of post-event mental health problems such as PTSD-symptomatology. These needs include, but are not limited to, to be comforted, a listening ear, acknowledgement, practical support, and advice. If the provided social support matches the victim's needs, it may help him/her to cope

with the event, with event-related sources of stress, or with a loss of resources, which in turns helps reduce the risk for post-event mental health problems (cf. Hobfoll, Freedy, Lane, & Geller, 1990). As such, perceived social support may moderate, mediate, or provide a buffer against the potential negative effects of serious threat and physical, sexual, and partner violence on victims' mental health (Adams et al., 2006; Cohen & Wills, 1985; Birkeland et al., 2017; Kaniasty & Norris, 2004; van der Velden et al., 2019; Yap & Devilly, 2004). Post-event social support may furthermore enhance the efficacy of the treatment of PTSD (Palardy et al., 2018). We therefore may expect that victims who lack social support, e.g. when they feel that their needs are not met or only partly met, are more at risk for post-event mental health problems (cf. Brewin et al., 2000, Ozer, Best, Lipsey, & Weiss, 2003). However, the relationships between perceived social support and post-event mental health problems are dynamic and complex (Guay et al., 2006; Yap & Devilly, 2004). Studies have shown that post-event mental health problems such as PTSD-symptomatology may erode social relationships and post-event social support at later stages (Kaniasty & Norris, 2008;

Shallcross et al., 2016; Nickerson et al., 2017; Van der Velden et al., 2019) and/or that perceived social support does not influence subsequent PTSD-symptomatology (Nickerson et al., 2017).

To date, many studies have assessed the associations between perceived social support and mental health problems among victims (cf. Guay et al., 2006; Nickerson et al., 2017; Yap & Devilly, 2004). Even so, the question to what extent post-event mental health problems among victims of threat and violence are dependent on the lack of pre-event social support has rarely been examined. Almost all longitudinal studies focusing on the relationship between social support and mental health problems among victims of threat and violence and other PTEs were conducted weeks or months after the event. This is understandable given that exposure to these events is a relatively unpredictable occurrence (Tracy et al., 2014), although these victims of threat and violence are at higher risk of being re-victimized (Roodman & Clum, 2001). While the post-event auto-regressive correlations of social support found in longitudinal studies suggest a degree of stability in perceived support (cf. Sarason, Sarason, & Pierce (1990), in Yap & Devilly, 2004), the extent to which post-event social support levels reflect pre-event support levels remains unclear (cf. DiGangi, Gomez, Mendoza, Jason, Keys, & Koenen, 2013).

In one of the very few prospective studies with pre-event measurements of social support, Smith et al. (2017) assessed students before an outbreak of community violence (the Isla Vista Killings) and continued its research after the outbreak. The results showed that social support assessed one year prior to the event was independently predictive of PTSD and depressive symptoms 5–6 months post-event, while controlling for other pre-event and post-event factors. Similarly, Grills-Taquechel et al. (2011), studying female students in the 0–6 months before another violent incident (the Virginia Tech Shootings), extended their study by carrying out assessments 8–12 weeks after the shooting. Results showed that family support, but not support from friends and significant others, predicted emotional, physiological and cognitive anxiety over and above pre-event anxiety and other factors. Assessing the impact of ongoing terrorism among Jews and Arabs in a two-wave prospective study, Johnson et al. (2009) found no indications that social support satisfaction at baseline was directly predictive of PTSD and depressive symptoms 6 months later while controlling for, among others, baseline symptoms. However, the Cronbach's alpha of the 3-item support measure among both subgroups were low (.60 and .55 respectively) and leave room for alternative interpretations. Importantly, these three studies did not include non-affected comparison groups (cf. Kaniasty & Norris, 1992; Tracy et al., 2014). It is therefore unknown whether victims with social support are, due to the victimization itself, still at greater risk of post-event mental health problems at follow-up than nonvictims with similar support levels. Nor is it known whether victims lacking pre-event emotional support are more at risk for these problems at follow-up than nonvictims with an existing lack of support.

In sum, there is a need for population-based prospective longitudinal comparative studies to prospectively examine the predictive value of pre-event lack of social support for mental health problems following confrontations with serious threat and violence. Such prospective comparative studies also provide the opportunity to assess whether victims are more likely to perceive a post-event lack of social support than nonvictims in the same period.

The aim of the present population-based prospective 2-wave comparative study is to shed light on this relatively uncharted area, focusing on the role played by a pre-event lack of emotional support. We focus on lack of emotional support, e.g. when support does not meet the victim's needs, since a lack of support is one of the strongest predictors of PTSD-symptomatology (Brewin et al. 2000; Nickerson et al., 2017; Ozer et al. 2003). Based on the current knowledge of the buffering effects of social support, and controlling for potential confounders such as demographics, anxiety and depression symptoms, and physical, work, and financial problems at baseline, we hypothesized that:

1) among the victims, those lacking emotional support at baseline (T1) significantly more often have high PTSD-symptom levels at follow-up (T2), anxiety and depressive symptoms at T2, and lack of support at T2 than those with emotional support at T1;
2) among individuals with emotional support at T1, victims do not significantly more often have high anxiety and depression-symptom levels at T2 and lack of support at T2 than nonvictims; and
3) among individuals lacking emotional support at T1, victims significantly more often have high anxiety and depression-symptom levels at T2 and lack of support at T2 than nonvictims.

To improve readability, we have abbreviated "perceived emotional support" as "emotional support" wherever possible throughout the rest of the paper.

2. Methods

2.1. Procedures and participants

We extracted data from two waves of the longitudinal research project entitled Victims in Modern Society (VICTIMS), which started in 2018. VICTIMS uses the Dutch Longitudinal Internet Studies for the Social Sciences (LISS) panel for data collection. This panel is administered by CentERdata (The Netherlands; Scherpenzeel & Das, 2011) and funded by the Dutch Research Council (NWO). It is based on a large traditional probability sample drawn from the Dutch population register by Statistics Netherlands (CBS). Panel members receive an incentive of €15 per hour for their participation and those who do not have a computer and/or internet access are provided with the necessary equipment at home (Scherpenzeel & Das, 2011). In compliance with the new General Data Protection Regulation (GDPR), participants gave explicit consent for the use of the collected data for scientific and policy-relevant research (further information, see https://www.lissdata.nl).

The first wave of the VICTIMS study was conducted in March 2018 (T1 = baseline) with reminders issued in April ($N^{invited}$ = 7292, response^{completed} = 82.1 %). Data from the first wave were weighted using 32 demographic profiles of the Dutch adult population (13.7 million), based on sex (male, female), age categories ($18-34$, $35-49$, $50-64$, 65 and older), marital status (married, not married – including living together) and employment status (employed, not employed): $2 \times 4 \times 2 \times 2 = 32$ profiles (based on data of Statistic Netherlands). All results are based on the total weighted sample. The second wave was conducted in March 2019 (T2 or follow-up) with reminders issued in April ($N^{invited}$ = 6298, response^{completed} = 83.2 %).

The questionnaire was approved by an Internal Review Board of CentERdata, consisting of a panel of internal and external reviewers. Previous research using the LISS panel revealed that the possible burden of participating in research on trauma was not related to PTSD symptoms and other trauma-related variables (van der Velden et al., 2013).

2.2. Measurements

2.2.1. Events in previous 12 months

At T1 and T2, respondents were administered a list of 21 PTEs in the previous 12 months (between T1 and T2). These included serious threat, without the use of physical violence (not online); online serious threat without use of physical violence; sexual violence/sexual abuse (not online); online sexual violence/sexual abuse; robbery; physical violence, not by partner; physical violence by partner. This questionnaire with 'yes' or 'no' answer categories was based on previous PTE research (Hentschel et al., 2016; Van der Velden et al., 2013; Bronner et al., 2009; de Vries & Olff, 2009), Criterion A1 events in DSM-IV, DSM-5 and events in the ICD-11 (cf. van der Velden et al., 2019). Participants were also given the opportunity to include PTEs in the

previous twelve months that were not listed and were then recoded in existing or new PTE categories. For the present study, we distinguished between respondents who were victim of serious threat and violence (hereafter: victims) and respondents not affected by any PTE or stressful life-event in the 12 months between T1 and T2 (hereafter: nonvictims). When respondents reported two or more events, they were asked to focus on the most impactful or stressful event. All affected respondents were asked when the event took place (1 = one week to 8 = 7–12 months ago). In total, 187 out of 228 victims of threat and violence reported that these events had been the most impactful or stressful events in the past 12 months, while 2828 respondents had not been exposed to any PTE or other stressful event in this period ($N^{total\ study\ sample}$ = 3015).

2.2.2. Lack of emotional support

To examine the lack of emotional support in response to problems at T1 and T2, the 8-item Social Support List-Discrepancy (SSL–D; Bridges et al., 2002; van Sonderen, 2012) was administered. The SSL-D instruction reads as follows: "The following questions are about the extent to which the behavior, the reactions of people with whom you interact differ from what you want them to be. You are asked to include all the people with whom you interact (family members, friends, neighbors, acquaintances, colleagues, etc.). For each item, select the answer that best applies to your situation." The items include "comfort you", "reassure you", "tell you to keep going", "give you good advice" and "help you clarify your problems". The SSL-D has 4-point Likert scales (1 = I miss this, I would like it to happen more often, 2 = I don't really miss it but I would prefer more, 3 = Exactly the right amount, 4 = It happens too often). For the present study, total scores were subtracted from the total maximum scores. Higher scores reflect more lack of emotional support (Cronbach's Alpha^{T1,T2} = .89).

2.2.3. Anxiety and depressive symptoms

At T1 and T2, anxiety and depressive symptoms were examined using the 5-item Mental Health Index or Inventory (MHI-5; Means-Christensen et al., 2005; Ware and Sherbourne, 1992). Respondents were asked to rate their mental health during the past month on a 6-point Likert scale (1 = never to 6 = continuously). After recoding the negatively formulated items, the total scores were computed by multiplying the total score by four (Cronbach's Alpha ≥ .87). Low scores reflect higher symptom levels. A cut-off of ≤ 44 (Driessen, 2011) was used to identify respondents with high anxiety and depressive symptom levels.

2.2.4. PTSD symptoms

PTSD symptomatology related to serious threat and violence among victims at T2 was assessed using the 8-item version of PCL-5 (Price et al., 2016; Van der Velden et al., 2018, 2018; Weathers, 2008), which examines symptoms across the four symptom clusters of PTSD according to DSM-5 (APA, 2013). Items focus on symptoms in the past month and have 5-point Likert scales (0 = not at all to 4 = extremely; Cronbach's Alpha = .92). For the present study, scores were dichotomized into low and high PTSD symptom levels using a cut-off of 13 (Pereira-Lima, Loureiro, Bolsoni, da Silva, & Osório, 2019).

2.2.5. Physical to problems

At T1, the Problems and Help Inventory List (PHIL; Van der Velden & Kleber, 1999) was administered as a brief screening to assess whether respondents had financial, physical health or work-related problems (1 = yes, 2 = no).

2.2.6. Data analyses

Bivariate and multivariate logistic regression analyses were conducted to assess differences in PTSD, anxiety and depressive symptoms, and lack of emotional support at T2 between victims with emotional support and victims lacking emotional support at T1. At step 1, lack of support was entered as predictor (bivariate OR). At step 2 the following nine potential confounders (assessed at T1) as predictors: anxiety and depressive symptoms, physical health problems, work-related problems, financial problems, sex, age category, level of education, marital status and employment status at T1 (adjusted OR). These nine predictors were entered stepwise to obtain parsimonious models by eliminating non-significant predictors, resulting in higher events-per-variable (EVO) ratios (PIN = 0.05, POUT = 0.10; cf. Peduzzi et al., 1996; van Smeden et al., 2016).

Due to the lack of a validated cut-off score to identify respondents lacking emotional support, the analyses were conducted using incremental cut-off scores. The cut-off scores used ranged from around the 70th percentile to around the 90th percentile of the scores for lack of emotional support (five cut-off scores in total). To improve readability, scores equal to or above the cut-off scores are labeled as "lack of emotional support" and scores below the cut-off scores are labeled as having "emotional support.

Similar regression analyses were conducted to examine differences in anxiety and depressive symptoms and lack of support at T2 between victims and nonvictims with emotional support and lacking emotional support at T1. At step 1 victim status was entered. Additional analyses showed that, among those lacking emotional support at T1, victims had higher scores on lack of emotional support at T1 than nonvictims. Although no differences in emotional support scores at T1 between victims and nonvictims with emotional support according to the cut-off scores were found, we added emotional support scores at T1 to the list of predictors in these multivariate analyses.

3. Results

3.1. Characteristics victims and nonvictims

Table 1 shows that victims and nonvictims differed significantly in age and marital status, but not in sex, employment, and education level at T1. Victims significantly more often had high anxiety and depression-symptom levels, and physical, work, and financial problems at baseline (T1) than nonvictims. Victims also more often lacked emotional support at baseline according to all five cut-off scores (prevalence for cut-off scores 13, 14, 15 and 16 not shown in Table 1). Of all victims, 74.3 % were victimized in the 6 months before T2. Victims with and without support at T1 did not differ in the time between the event and T2 across the five cut-off scores. However, for the lower cut-off scores of 12 and 13, victims lacking emotional support at T1 were confronted with more PTE between T1 and T2 than victims with emotional support at T1 (cut-off 12: t = − 2.87, df = 100.4, p = 0.005, M = 0.50 (sd = 0.68) versus 1.16 (sd = 2.03); cut-off 13: t = − 2.92, df = 88.4, p = 0.004, M = 0.50 (sd = 0.67) versus 1.22 (sd = 2.10)).

3.2. PTSD symptoms at T2

The results with respect to PTSD symptoms are presented in Table 2, showing that victims lacking emotional support at T1 more often had severe PTSD-symptoms at T2 than victims with support at T1 regardless of the used cut-offs scores. The ORs were adjusted for T1 financial problems, mental health problems and sex in all analyses (see Appendix A.1 for full tables with adjusted ORs). Adding the number of PTEs in the stepwise regression analyses did not change the findings (PTE was not entered).

3.3. Anxiety and depressive symptoms at T2

The prevalence of severe symptoms is presented in Table 3. Victims lacking emotional support at T1 more often had anxiety and depression symptoms at T2 than victims with emotional support at T1 regardless of the cut-off scores. For the cut-off scores from 12 to 16, the adjusted Odds Ratios (ORs) were 5.99 (95 % CI = 2.22 – 16.17, p < 0.001), 5.51

Table 1
Characteristics of nonvictims and victims at baseline.

	Nonvictims (N = 2828)		Victims (N = 186)		
	n	%	n	%	
Age at T1					***
18 − 34	750	26.5	49	26.3	
35 − 49	677	23.9	63	33.9	
50 − 64	711	25.1	51	27.4	
65 or older	691	24.4	23	12.4	
Sex					ns
Male	1421	50.2	86	46.0	
Female	1407	49.8	101	54.0	
Employed at T1					ns
Yes	1367	48.3	83	44.6	
No	1461	51.7	103	55.4	
Married at T1					*
Yes	1451	51.3	113	60.4	
No	1377	48.7	74	39.6	
Education level at T1					ns
prim. educ.	656	23.2	31	16.6	
higher gen. sec.	182	6.4	16	8.6	
inter. prof. educ.	678	24.0	43	23.0	
high. prof. educ.	777	27.5	59	31.6	
university	536	18.9	38	20.3	
Physical problems at T1					***
No	1960	69.3	106	57.0	
Yes	868	30.7	80	43.0	
Problems at work at T1					***
No	2677	94.6	163	87.2	
Yes	152	5.4	24	12.8	
Financial problems at T1					***
No	2631	93.0	147	79.0	
Yes	197	7.0	39	21.0	
Anxiety and depressive symptoms at T1					***
No	2674	94.7	162	87.1	
Yes	150	5.3	24	12.9	
Lack of emotional support at T1 according to cut-off score 12					***
No	2075	73.4	101	54.3	
Yes	753	26.6	85	45.7	

Education level: prim. educ. = primary education, preparatory intermediate vocational education; higher gen. sec. = higher general secondary/pre-university education; inter. prof. educ. = intermediate professional education; high. prof. educ. = higher professional education. Due to weighting total numbers may vary slightly.

* p < 0.05 ** p < 0.01 *** p < 0.001.

(95 % CI = 2.14 − 14.15, p = 0.002), 5.41 (95 % CI = 2.20 − 13.30, p < 0.001), 3.89 (95 % CI = 1.64 − 9.23, p < 0.001) and 5.21 (95 % CI = 2.13 − 12.73, p < 0.001) respectively (see Appendix A.1 for full tables). As previously stated, victims lacking emotional support at T1 were confronted with more PTE's between T1 and T2 than those with support. However, adding the number of PTEs in all stepwise regression analyses did not change the findings (PTE was not entered or did not lower the adjusted ORs).

The results of the bivariate and multivariate logistic regression analyses among victims and nonvictims are presented in Table 3 (see Appendix A2 for full tables). According to the adjusted ORs, victims with emotional support at T1 did not experience anxiety and depressive symptoms at T2 significantly more often than nonvictims with emotional support at T1. No significant differences emerged across the five incremental cut-off scores. In contrast, anxiety and depressive symptoms at T2 were significantly more common among victims lacking emotional support at T1 than among nonvictims lacking emotional support at T1 across the cut-off scores used.

3.4. Lack of emotional support at T2

As the crude prevalence in Table 4 suggests, victims lacking emotional support at T1 were significantly more likely than victims with

support at T1 to experience a lack of support at T2 (see Appendix A1 for full tables). For the cut-off scores from 12 to 16, the adjusted ORs were 12.20 (95 % CI = 5.77 − 25.82, p < 0.001), 10.91 (95 % CI = 5.07 − 23.51, p < .001), 7.42 (95 % CI = 3.40 − 16.22, p < 0.001), 12.40 (95 % CI = 5.30 − 29.00, p < 0.001) and 11.20 (95 % CI = 4.67 − 26.83, p < 0.001) respectively. Adding the number of PTEs in the stepwise regression analyses did not change the findings (PTE was not entered or did not lower the adjusted ORs).

The results of the analyses with respect to a lack of emotional support at T2 among victims and nonvictims are shown in Table 4 (see Appendix A3 for full tables). Compared to the previous findings with regard to anxiety and depressive symptoms, victims and nonvictims with emotional support did not differ significantly in the prevalence of a lack of emotional support at T2 according to the adjusted ORs. A re-calculation shows that 84.7 % of nonvictims (100 − 15.3) and 80.2 % of victims (100 − 19.8) with emotional support at T1 using the cut-off score of 12 were also with support at T2. The results differ slightly with respect to a lack of emotional support at T1. According to the adjusted ORs, victims and nonvictims did not differ significantly in the prevalence of a lack of support at T2 when using a cut-off score of 14 or higher. However, when using lower cut-off scores (12 and 13), a lack of emotional support at T2 was significantly more prevalent among victims than among nonvictims when both reported a lack of emotional support at T1.

Although we controlled for anxiety and depressive symptoms and problems related to physical health, work and finances at T1, this did not rule out an effect resulting from PTE and stressful life-events (SLE) prior to T1. We therefore repeated the analyses, adding PTE and SLE (1 = no PTE and no SLE in 12 months before T1, 2 = PTE or SLE in 12 months before T1) to the list of predictors in all stepwise logistic regression analyses. This did not result in any changes to the main findings (data not shown). To test the robustness of our findings we re-analyzed our data using another strategy to compute lack of emotional support. This was done by counting how often each respondent answered the eight SSL-D questions with "I miss this, I would like it to happen more often" or "I don't really miss it but I would prefer more", instead of using the total scores of lack of emotional support (with the 4-point Likert scales). This count score was, as was applied in the analyses above, dichotomized using the incremental cut-off scores of ≥ 5 (upper about 19.5 %), ≥ 6 (upper about 14.0 %), and ≥ 7 (upper about 10.0 %) to define a lack of emotional support. All multivariate logistic regression analyses were repeated using this strategy to define a lack of emotional support and results showed similar patterns as our original multivariate logistic regression analyses.

4. Discussion

4.1. Main results

As expected, compared to victims with pre-event emotional support, the study revealed a higher prevalence of severe post-event anxiety, depressive symptoms and PTSD among victims lacking pre-event emotional support while controlling for significant confounders such as sex, pre-event financial problems, and anxiety and depressive symptoms (cf. Ozer et al., 2013). Victims lacking pre-event emotional support were two to four times as much at risk for severe PTSD symptoms than victims with pre-event support. As hypothesized, victims and nonvictims with pre-event emotional support did not differ significantly in the prevalence of severe anxiety and depressive symptoms at follow-up. Victims lacking pre-event emotional support were, as hypothesized, significantly more at risk of severe post-event anxiety and depressive symptoms than nonvictims who also reported a lack of existing emotional support. These clear patterns were found across the five cut-off scores, providing strong evidence for the hypothesized buffering effect of social support, in this case pre-event emotional support (cf. Cohen & Wills, 1985; Kaniasty & Norris, 2004; Yap & Devilly, 2004).

Table 2

Severe PTSD-symptoms at T2 among victims with pre-event emotional support and lacking pre-event emotional support at T1.

Lack of emotional support at T1[1]	n[total]	PTSD symptoms at T2			
		n	%	OR (95 % CI)	aOR (95 % CI)
According to cut-off score 12 (upper 27.8 %)					
victims with pre-event ES (ref.)	101	12	11.9	1	1
victims lacking pre-event ES	84	32	38.1	4.44 (2.12 − 9.29)***	3.42 (1.51 − 7.75)**
According to cut-off score 13 (upper 21.9 %)					
victims with pre-event ES (ref.)	108	14	13.0	1	1
victims lacking pre-event ES	77	30	39.0	4.24 (2.07 − 8.70)***	3.16 (1.41 − 7.09)**
According to cut-off score 14 (upper 17.1 %)					
victims with pre-event ES (ref.)	121	19	15.7	1	1
victims lacking pre-event ES	65	26	40.0	3.45 (1.72 − 6.93)**	2.40 (1.07 − 5.38)*
According to cut-off score 15 (upper 13.6 %)					
victims with pre-event ES (ref.)	127	21	16.5	1	1
victims lacking pre-event ES	58	23	39.7	3.24 (1.61 − 6.53)**	2.35 (1.05 − 5.28)*
According to cut-off score 16 (upper 11.9 %)					
victims with pre-event ES (ref.)	138	24	17.4	1	1
victims lacking pre-event ES	47	20	42.6	3.58 (1.74 − 7.37)**	2.56 (1.11 − 5.92)*

[1] Higher scores reflect higher levels of lack of support. n[total] = total number of respondents in specific group. n = number of respondents with severe PTSD symptoms at T2. Ref. = reference category. ES = Emotional support. aOR = OR adjusted for one or more control variables (see appendix a.1). 95 % CI = 95 confidence interval OR. All EPV ratios ≥11. Due to weighting, total numbers may vary slightly.

* p < 0.05.
** p < 0.01.
*** p < 0.001.

With respect to post-event lack of emotional support, findings partly differ. As hypothesized, no difference in post-event lack of support was found between victims and nonvictims with support at T1 when controlling for significant factors at baseline across the five cut-off scores. However, among victims and nonvictims lacking emotional support at baseline according to the lower cut-off scores of 12 and 13, victims indeed significantly more often lacked emotional support at follow-up.

However, when the higher cut-off scores were used (14, 15 and 16) no significant differences between victims and nonvictims were found. This last finding suggests that there is a ceiling effect: victims lacking pre-event emotional support are at higher risk of a lack of post-event social support than nonvictims unless they have a very high lack of pre-event support.

Importantly, a comparison of victims and nonvictims showed a

Table 3

Anxiety and depressive symptoms among victims and nonvictims at T2 with emotional support and lacking emotional support at T1.

Lack of emotional support at T1[1]	n[total]	Anxiety and depressive symptoms at T2			
		n	%	OR (95 % CI)	aOR (95 % CI)
According to cut-off score 12 (upper 27.8 %)					
nonvictims with pre-event ES (ref.)	2075	64	3.1	1	1
victims with pre-event ES	101	6	5.9	2.11 (0.91 − 4.89)	1.12 (0.41 − 3.07)
nonvictims lacking pre-event ES (ref.)	752	81	10.8	1	1
victims lacking pre-event ES	85	28	32.9	4.04 (2.42 − 6.72)***	3.73 (2.00 − 6.98)***
According to cut-off score 13 (upper 21.9 %)					
nonvictims with ES (ref.)	2246	79	3.5	1	1
victims with pre-event ES	108	7	6.5	1.96 (0.89 − 4.29)	1.15 (0.45 − 2.95)
nonvictims lacking pre-event ES (ref.)	581	66	11.4	1	1
victims lacking pre-event ES	78	27	34.6	4.16 (2.44 − 7.10)***	3.89 (2.03 − 7.46)***
According to cut-off score 14 (upper 17.1 %)					
nonvictims with pre-event ES (ref.)	2379	83	3.5	1	1
victims with pre-event ES	121	9	7.4	2.28 (1.12 − 4.62)*	1.37 (0.59 − 3.21)
nonvictims lacking pre-event ES (ref.)	448	62	13.8	1	1
victims lacking pre-event ES	65	25	38.5	3.87 (2.19 − 6.82)***	4.49 (2.29 − 8.81)***
According to cut-off score 15 (upper 13.6 %)					
nonvictims with pre-event ES (ref.)	2477	93	3.8	1	1
victims with pre-event ES	128	13	10.2	2.81 (1.52 − 5.21)**	1.62 (0.75 − 3.51)
nonvictims lacking pre-event ES (ref.)	350	51	14.6	1	1
victims lacking pre-event ES	58	21	36.2	3.33 (1.81 − 6.12)***	3.77 (1.80 − 7.92)***
According to cut-off score 16 (upper 11.9 %)					
nonvictims with pre-event ES (ref.)	2556	104	4.1	1	1
victims with pre-event ES	138	14	10.1	2.57 (1.42 − 4.65)**	1.48 (0.71 − 3.07)
nonvictims lacking pre-event ES (ref.)	270	41	15.2	1	1
victims lacking pre-event ES	47	20	42.6	4.25 (2.19 − 8.26)***	5.10 (2.21 − 11.8)***

[1] Higher scores reflect higher levels of lack of support. n[total] = total number of respondents in specific group. n = number of respondents with anxiety and depressive symptoms at T2 within the specific group. Ref. = reference category. ES = Emotional support. aOR = OR adjusted for one or more control variables (see appendix a.2). All EPV ratios ≥12. Due to weighting, total numbers may vary slightly.

* p < 0.05.
** p < 0.01.
*** p < 0.001.

Table 4

Lack of emotional support among victims and nonvictims at T2 with emotional support and lacking emotional support at T1.

Lack of emotional support at T1[1]	n[total]	Lack of emotional support at T2			
		n	%	OR (95 % CI)	aOR (95 % CI)
According to cut-off score 12 (upper 27.8 %)					
nonvictims with pre-event ES (ref.)	2075	318	15.3	1	1
victims with pre-event ES	101	20	19.8	1.40 (0.85 − 2.30)	1.18 (0.70 − 2.00)
nonvictims lacking pre-event ES (ref.)	754	394	52.3	1	1
victims with lack of pre-event ES	85	63	74.1	2.62 (1.58 − 4.35)***	2.06 (1.22 − 3.49)**
According to cut-off score 13 (upper 21.9 %)					
nonvictims with pre-event ES (ref.)	2246	270	12.0	1	1
victims with pre-event ES	109	20	18.3	1.65 (1.00 − 2.73)*	1.54 (0.91 − 2.61)
nonvictims lacking pre-event ES (ref.)	582	280	48.1	1	1
victims lacking pre-event ES	78	54	69.2	2.39 (1.44 − 3.97)**	2.03 (1.21 − 3.43)**
According to cut-off score 14 (upper 17.1 %)					
nonvictims with pre-event ES (ref.)	2378	234	9.8	1	1
victims with pre-event ES	121	22	18.2	2.05 (1.27 − 3.31)**	1.53 (0.91 − 2.56)
nonvictims lacking pre-event ES (ref.)	449	208	46.3	1	1
victims lacking pre-event ES	66	39	59.1	1.68 (0.99 − 2.85)	1.40 (0.81 − 2.42)
According to cut-off score 15 (upper 13.6 %)					
nonvictims with pre-event ES (ref.)	2479	197	7.9	1	1
victims with pre-event ES	127	16	12.6	1.65 (0.95 − 2.84)	1.23 (0.69 − 2.21)
nonvictims lacking pre-event ES (ref.)	350	156	44.6	1	1
victims lacking pre-event ES	59	33	55.9	1.59 (0.91 − 2.77)	1.41 (0.80 − 2.50)
According to cut-off score 16 (upper 11.9 %)					
nonvictims with pre-event ES (ref.)	2258	173	7.7	1	1
victims with pre-event ES	139	15	10.8	1.72 (0.99 − 2.99)	1.12 (0.61 − 2.03)
nonvictims lacking pre-event ES (ref.)	270	110	40.7	1	1
victims lacking pre-event ES	47	26	55.3	1.81 (0.97 − 3.37)	1.61 (0.84 − 3.09)

[1] Higher scores reflect higher levels of lack of support. n[total] = total number of respondents in specific group. n = number of respondents lacking emotional support at T2. Ref. = reference category. ES = Emotional support. aOR = OR adjusted for one or more control variables (see appendix a.3). All EPV ratios ≥ 45. Due to weighting, total numbers may vary slightly.

* p < 0.05.
** p < 0.01.
*** p < 0.001.

higher incidence of pre-existing problems relating to physical health, work and finances among victims, along with a higher incidence of anxiety and depressive symptoms. Since we controlled for these factors, our findings cannot be attributed to these pre-existing differences. Victims were also more likely to lack support at baseline than non-victims – a pattern that was first found almost 40 years ago by Kaniasty and Norris (1992) – indicating that the problems observed among victims of threat and violence in post-event studies were already present before the event occurred (cf. DiGangi et al., 2013). This warns us against attributing all post-event problems to the event.

Although the present study focused on the role of pre-event support, findings showed that financial problems at baseline were predictive of a lack of support at follow-up in the analyses comparing victims and nonvictims, and predictive of PTSD symptoms in the analyses among victims. This is in line with previous research among victims of disasters (Pietrzak et al., 2013), war (Karam et al., 2008), traffic accidents (Mayou et al., 2002), and deployed soldiers (Gibbons et al., 2012), showing that financial problems increase the risk of PTSD symptoms. The independent predictive value of financial problems for PTSD symptoms was not lower than the predictive value of lack of support. These findings suggest that additional attention should be given to financial problems among victims.

This and several other findings are relevant to victim services. Asking questions designed to assess pre-event emotional support as part of early screening measures may help identify those victims of serious threat and violence who are more likely to suffer from post-event PTSD, anxiety and depressive symptoms, and to lack support at later stages.

4.2. Strengths and limitations

The strengths of the present study include the use of a large population-based sample, a truly prospective study design, validated questionnaires, high response rates, and the assessment of the role of pre-event lack of support while controlling for potential confounders such as demographics, pre-event mental health, financial, work-related problems and physical health problems. However, we did not conduct clinical interviews to assess pre-and/or post-event mental disorders such as PTSD and major depression disorder (MDD). In this study, we focused on emotional support and it is unclear to what extent other types of pre-event social support such as informative and practical support yield similar results. We focused on lack of pre-event emotional support to assess the discrepancy between needs and perceived support, and not on positive support. Post-event positive support is less predictive of post-event PTSD symptoms (Andrews et al., 2003; Ullman, 1996). In addition, the time between baseline and follow-up assessments was one year; future prospective studies should therefore examine the effects of pre-event emotional support on post-event mental health problems and lack of support in the shorter and longer term. We could not assess to what extent lack of emotional support is associated with subsequent changes in PTSD symptomatology (cf. Nickerson et al., 2017). Due to the sample size, we were not able to re-analyze the association among victims of serious threat and among victims of physical violence separately.

Our results showed that pre-event lack of social support partly explained high levels of post-event mental health problems and lack of emotional support. A limitation is that we did not examine third variables that may be independently associated with and further explain post-event mental health problems and lack of emotional support (cf. Brewin et al., 2000, Ozer et al., 2003). For instance, we have no data on negative post-trauma cognitions (Robinaugh et al., 2011) that may, like lack of support, hinder recovery. It was beyond the scope of the present study to examine to what extent a pre-event lack of emotional support affects post-event coping self-efficacy levels (Smith et al., 2017) that are associated with lower levels of PTSD symptoms (Bosmans & Van der

Velden, 2017). In addition, other important post-event mental health problems such as substance misuse and abuse, sleep problems and fatigue should be addressed in future research.

Future research is needed to confirm (or reject) our findings among victims and nonvictims in other countries, and among victims of other PTEs such as traffic accidents and the unexpected loss of a significant other. Although we consider it likely that our main findings can be generalized to children and adolescents (cf. Trickey et al., 2012), future prospective research among these groups is warranted (cf. Grills-Taquechel et al., 2011; Smith et al., 2017).

4.3. Final conclusions

To the best of our knowledge, this study is the first prospective comparative population-based study assessing the predictive values of pre-event lack of emotional support among victims of serious threat and violence for severe post-event PTSD, anxiety and depressive symptoms. Our findings strongly support the hypothesized buffering effect of emotional support, and are also of practical relevance for victim services. The inclusion of pre-event social support assessments in early screening programs or instruments (cf. Bisson et al., 2010) may further improve the negative and positive predictive values of such programs or instruments. We found little evidence that victims lacking pre-event emotional support were at greater risk of post-event lack of support compared to nonvictims with similar pre-event support levels. Nevertheless, interventions to enhance recovery or prevent the development of post-event mental health problems may benefit from targeting the lack of social support among victims (cf. Simon et al., 2019; Cloitre et al., 2010; Roberts et al., 2019).

Declaration of Competing Interest

None.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.janxdis.2020.102269.

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