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Social organizational stressors and post-disaster mental health disturbances: A longitudinal study

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ABSTRACT

Social organizational stressors are well-known predictors of mental health disturbances (MHD). However, to what extent these stressors predict post-disaster MHD among employed victims hardly received scientific attention and is clearly understudied. For this purpose we examined to what extent these stressors independently predict MHD 1.5 years post-disaster over and above well-known risk factors such as disaster exposure, initial MHD and lack of general social support, life-events in the past 12 months and demographics ($N=423$). Exposure, social organizational stressors and support were significantly associated with almost all examined mental health disturbances on a bi-variate level. Multivariate logistic regression analyses showed that these stressors, i.e. problems with colleagues, independently predicted anxiety (*Adj. OR*=5.93), depression (*Adj. OR*=4.21), hostility (*Adj. OR*=2.85) and having two or more mental health disturbances (*Adj. OR*=3.39) in contrast to disaster exposure. Disaster exposure independently predicted symptoms of PTSD symptoms (*Adj. OR*=2.47) and agoraphobia (*Adj. OR*=2.15) in contrast to social organizational stressors. Importantly, levels of disaster exposure were not associated nor correlated with (levels of) social organizational stressors. Findings suggest that post-disaster mental health care programs aimed at employed affected residents, should target social organizational stressors besides disaster-related stressors and lack of general social support.

1. Introduction

Numerous studies on traumatic stress have assessed potential risk factors for post-event PTSD-symptomatology. Risk factors for (symptoms of) major depression, generalized anxiety, adjustment disorder and substance abuse following potentially traumatic events, were less often examined: current meta-analyses on risk-factors for post-trauma mental health problems are primarily focused on PTSD or PTSD-symptomatology (Brewin et al., 2000; Ozer et al., 2003). With regard to disasters, a large series of potential risk factors for posttraumatic stress symptoms among adult affected residents after disasters have been evaluated and identified (Neria et al., 2009). They vary from pre-event functioning (Dirkzwager et al., 2006), and disaster exposure to post-disaster social support (Kaniasty and Norris, 1995; Guay et al., 2006; Kaniasty and Norris, 2008). More recently, factors related to the collective nature of disasters have also been explored, such as community social capital (Kawachi and Subramanian, 2006; Wind and Komproe, 2012).

Stressors related to the work setting of employed affected residents, in contrast to stressors related to post-event life-events, hardly received attention in empirical disaster research. This is remarkable since the influence of such stressors on mental health such as burnout and fatigue is very well documented (cf. House, 1981; Karasek and Theorell, 1990; Beehr and McGrath, 1992; Frese, 1999; Viswesvaran et al., 1999; Halbesleben, 2006) and many affected residents are employed. The few disaster studies that examined risk factors related to work were primarily focused on job loss but not on work and organizational factors. In this study we are particularly interested in the possible influence of social organizational stressors, for instance, conflicts at work, lack of appreciation and recognition and negative atmosphere. These are generally recognized as important for mental health in workers (House, 1981; Kahn and Byosiere, 1992; Cooper et al., 2001) but have, to the best of our knowledge, never been examined in the perspective of post-disaster posttraumatic stress symptoms and recovery among employed affected residents. Nandi et al. (2004)

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assessed the independent predictive value of general work stress and (changes in) job satisfaction, for PTSD following the 9/11 terrorists attacks, besides other factors related to work such as income. Findings among employed residents showed that work stress assessed by one item was very strongly predictive (adjusted *OR*=9.78) for PTSD one year post-event, while job satisfaction, also assessed by a single item, was not related to PTSD. Factors that are also related to post-event mental health problems, such as severity of disaster exposure and general social support were not included in this study. Therefore the question remains to what extent social organizational stressors are independent predictors over and above exposure and general support.

The influence of social organizational stressors on mental health besides the influence of potentially traumatic stressors is clearly demonstrated in several police studies (Violanti and Aron, 1993; Hart et al., 1995; Collins and Gibbs, 2003; Huddleston et al., 2007; Maguen et al., 2009; Van der Velden et al., 2010). These studies have shown that the predictive value of social organizational stressors is at least as strong as the predictive values of potentially traumatic stressors (violence, accidents, etc.), for mental health problems among police officers.

In sum, there are good empirical reasons to hypothesize that social organizational stressors independently predict post-event mental health disturbances among employed adults affected by disasters, over and above disaster exposure, life-events, lack of general social support and demographics such as age and gender. Moreover, this hypothesis is in line with the Conservation of Resources Theory (Hobfoll, 1989, 2002), used in disaster research as well as in organizational research on stress (cf. Westman et al., 2004; Hobfoll et al., 2012; Schat and Frone, 2011). This theory predicts that mental health problems are caused by the (threat of) loss of important resources (i.e. stressors), such as disaster exposure (loss of safety), lack of general social support and relational problems with colleagues and superiors.

Aim of the present study is to test this hypothesis and to examine if social organizational stressors should be included and targeted in post-disaster mental health care programs. We focused on a broad category of mental health disturbances as dependent variables: severe symptoms of anxiety, depression, hostility, disaster-related PTSD (intrusions and avoidance) and agoraphobia.

2. Materials and methods

2.1. Background and participants

On May 13, 2000, a massive explosion in a fireworks storage occurred in a residential area in the city of Enschede, the Netherlands. The disaster severely damaged or destroyed about 500 houses, killed 23 people and injured over 900 victims (for details see Kleber and Van der Velden, 2009). The Dutch Government declared it a national disaster and decided to launch the comprehensive Enschede Fireworks Disaster Study. The Medical Ethical Committee of the Netherlands Organization for Applied Scientific Research (TNO, Zeist) approved the study protocols and all participants gave their written informed consent.

Participants in the present study were adult residents of the affected area in Enschede of Dutch origin. The research procedures (information, written informed consent, approval Medical Ethical Testing Committee) and the characteristics of all participants as well as the psychometric properties of our measures were described elsewhere in detail (Van der Velden et al., 2006, 2007, 2009).

In brief, for the first survey 2–3 weeks post-disaster all approximately 4500 affected adult residents were asked to participate. The second survey took place 18 months post-disaster (November–December 2001; estimated response 2–3 weeks post-disaster, response=33%; 18 months post-disaster, response=80% of participants at T1). Non-response analyses with respect to the first wave showed that prevalence estimates of mental health problems were not biased, i.e. although there was selective participation, multiple imputation techniques (also) using the data of the electronic medical records of the General Practitioners, barely affected prevalence estimates of health problems in the survey 3 weeks post-disaster (Grievink et al., 2006). For the present study we selected Dutch native respondents who worked at T2 for 19 h per week or more (*N*=423).

2.2. Measures

All respondents filled in a paper-and-pencil questionnaire at both waves.

2.2.1. Disaster exposure

Disaster exposure was examined 2–3 weeks post-disaster. We used the total scores on a screening list of 21 items (0=no, 1=yes) about what participants had seen, felt, heard, or smelled during or immediately after the disaster such as "Had they felt air pressure from the fatal explosion" and "Had they experienced intense fear or had they seen any injured or dead people" (cf. Van der Velden et al., 2007). For the present study, four levels of disaster exposure were distinguished to obtain four subgroups with more or less the same sample size: (1) low (scores < 7), (2) medium ($8 \leq$ scores ≤ 11), (3) high ($12 \leq$ scores ≤ 14), and very high (scores ≥ 15).

2.2.2. Life events

We assessed stressful life events (for example death of a significant other, divorce, victim of crime) 18 months post-disaster (cf. Van der Velden et al., 2007). For the present study we made a distinction between participants who reported one of more life events in the past year and respondents who did not.

2.2.3. Social organizational stressors

Social organizational stressors among all respondents were assessed using a 4-point response scale (0=always, 3=never) with nine items for problems with colleagues and nine items for problems with superiors taken from the Questionnaire on the Experience and Evaluation of Work (QEEW, VVBA in Dutch; Van Veldhoven et al., 1997, 2002). Items of both scales cover topics such as conflicts, aggression, lack of support in case of work problems, negative atmosphere, and absence of appreciation (Cronbach's alpha: colleagues=0.97, superiors=0.98). We distinguished three levels of severity of problems with colleagues (for this purpose scores of the total study group on both scales were divided in three sub-groups with more or less the same numbers of respondents or proportions): low levels (scores ≤ 3), medium levels ($4 \leq$ scores ≤ 7), and high levels of problems (scores ≥ 8), and three levels of severity of problems with superiors: low levels (scores ≤ 2), medium levels ($3 \leq$ scores ≤ 6), and high levels of conflicts (scores ≥ 7).

2.2.4. General social support

General lack of social support was examined using the total score of the 34-item Social Support List Discrepancy (SSL-D) questionnaire (34 items; Van Sonderen, 1993; Bridges et al., 2002). Items have 4-point scales and cover (lack of) everyday emotional support, emotional support in response to problems, appreciation of support, instrumental support, social companionship and informative support (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; Cronbach's alpha=0.95). For the present study three levels of lack of social among all respondents were distinguished (for this purpose the lack of social support scores of the total study group was divided into three subgroups with more or less the same numbers of respondents or proportions): low levels (scores ≤ 37), medium levels ($38 \leq$ scores ≤ 47), and high levels of lack of social support (scores ≥ 48).

2.2.5. Mental health disturbances

Mental health at T1 and T2 was examined using the 5-point response scales (1=not at all, 5=extremely) of the subscales anxiety (10 items), depression (16 items), hostility (6 items) and agoraphobia (7 items) of the Symptom Checklist 90-Revised (SCL-90-R; Derogatis, 1983; Arrindell and Ettema, 1986). The SCL-90-R refers to symptoms during the past 7 days.

For anxiety, depression and hostility, the Dutch SCL-90-R cut-off scores (Arrindell and Ettema, 1986) for males and females of a normal population were used to identify respondents with severe health problems (high or very high scores: scales males: anxiety ≥ 15, depression ≥ 23, hostility ≥ 9; agoraphobia8 $\geq$; scales females: anxiety ≥ 18, depression ≥ 28, hostility ≥ 17; agoraphobia ≥ 10). Cronbach's alpha values for all subscales proved to be good (all alpha's > 0.91; Van der Velden et al., 2006, 2007).

2.2.6. Disaster-related PTSD symptoms: intrusions and avoidance

Disaster-related intrusions and avoidance reactions at T1 and T2 were assessed using the Dutch version of the Impact of Event Scale (IES; Horowitz et al., 1979). Scores on the 15 items were rated on a 4-point Likert scale (0=not at all, 5=often) and assessed the degree of disaster-related intrusions and avoidance reactions during the past 7 days, with total scores ranging from 0 to 75. The reliability and structure of the Dutch IES has proven to be adequate across various traumatic stressors. It has a robust structure, supporting the composition (Intrusions and Avoidance scale) of the original IES (see van der Ploeg et al., 2004). At all measurement points, the internal consistency was excellent, Cronbach's alpha's ≥ 0.94). A cut-off score of 25 (> 25) was used to identify survivors with relatively severe intrusions and avoidance reactions (Van der Velden et al., 2006).