

The work environment, critical incidents, debriefing and psychological functioning—a study of trade union members in Sweden

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Objectives This study explored the associations between critical incidents, the psychosocial work environment, debriefing, and poor psychological health, including posttraumatic stress disorder (PTSD), among shop attendants.

Methods Questionnaires were administered to members of the Swedish trade union and to persons who had had brief treatment after a robbery.

Results Of the respondents, 6.6% reported robbery in their workplace. Those who were repeatedly exposed to robberies and scored above the cut-off for PTSD comprised 14.2–16.4% of the total number of PTSD cases. The workers exposed to a robbery felt less safe at work, without differing from others regarding other measures of psychosocial factors, namely, social support, influence, and job strain. The participants with PTSD reported significantly worse social support at work, but did not differ as to influence or demand–control. Debriefing (yes, no) had no statistical relationship with the prevalence of PTSD among robbery victims, but, in the whole group, including other traumatic events, debriefing showed a weak, albeit significant association with self-rated psychological function. The debriefed (after any negative work- or nonwork-related event) participants did not differ as regards symptoms of PTSD, but they reported less depression and better psychological functioning, even after adjustment for social support at work. A long sick leave after a robbery was associated with poor support from managers and colleagues.

Conclusions Social support, including support from managers, was associated with few symptoms, good psychological function, and shorter sick leave. People with PTSD have poorer general work conditions and social support, but similar influence or demand–control at work.

Key terms anxiety; debriefing; depression; positive state of mind; posttraumatic stress disorder; robbery; work environment.

Posttraumatic stress disorder (PTSD) is characterized by patients' reliving overwhelming traumatic experiences, their avoidance of reminders or different forms of emotional numbing, and increased arousal, expressed as irritability, sleeping problems, difficulties concentrating, hypervigilance, or an increased startle reflex (1). The symptoms can be incapacitating and are often accompanied by decreased cognitive capacity (2, 3).

In some work environments, the occupational hazards of risking exposure to potentially traumatizing events are increased. One group that, during the recent decade, has been increasingly exposed to robbery is shop attendants. Several reports have shown that robberies have been increasing and that this is actually the single most important potentially traumatic event in the work environment of shop attendants in Sweden (4), as well a

one of the five factors associated with the prevalence of PTSD among the general population (5) and among shop attendants (4) in Sweden. A two- to threefold increase in the risk of developing PTSD has been observed after robberies.

It has been assumed that the prevalence of PTSD is associated with an accumulation of traumatic events (6–8), rendering people who have been previously exposed to traumatic events more vulnerable (9, 10). However, the epidemiologic literature has shown that humans are often exposed to a large number of potentially traumatizing events, so that at least half of the population has been exposed to events that might well lead to PTSD or make them more vulnerable (11–13).

Efforts to prevent PTSD after exposure to traumatic events have been a disappointment (14) after the initial

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enthusiasm about critical incident debriefing (15) or stress management. It has thus been shown that single-session group interventions performed by trained lay persons aiming at reducing the risk of later development of PTSD in victims of disaster, at best, make no difference. At the same time, it is feared that, while debriefing may be experienced as beneficial by persons who would recover anyway, it may be harmful to persons with a high level of re-experiencing and dissociative symptoms after a traumatic event. It is therefore recommended that people be given support individually and with a stance of "active expectancy" (16) or otherwise stated, "screen and treat" (14).

Another potentially moderating factor after traumatic experiences is the quality of the work environment. In a cross-sectional study, Bennett et al (17) showed that organizational stress is a moderating factor in symptoms of PTSD among emergency personnel. van der Ploeg & Kleber (18) carried out a longitudinal study among ambulance personnel and found that a lack of social support at work, as well as poor communication, were the strongest predictors of symptoms of PTSD, burnout, and fatigue at follow-up.

In our present study, the characteristics of the work environment were explored in relation to exposure to robbery, indicators of PTSD, and measures of anxiety and depression in two samples, a cross-sectional sample of Swedish trade union members and a retrospective sample of persons who had been referred for psychological support after robbery in the workplace.

Study population and methods

Swedish trade union members

A questionnaire was distributed to 5000 members of the Swedish trade union. Altogether 1730 questionnaires were returned (28.8%).

Among the respondents, 13.7% were men and 86.3% were women. The mean age of the men and women was 43 (SD 11) years and 45.5 (SD 11.5) years, respectively.

The questionnaire had questions about exposure to robbery, possible education about how to act during a robbery, a life event checklist (19), the PTSD checklist (20, 21), the Hopkins symptom checklist-25 for anxiety and depression (22), positive states of mind (PSOM) for self-rated psychological functioning and well-being (23, 24), questions regarding treatment given after the incident (including debriefing), physical health and sick leave, and questionnaires regarding the work environment. In our study, the psychometric performance of the PTSD checklist, the Hopkins symptom checklist for anxiety and depression, and the PSOM questionnaire

was satisfying, with Cronbach α values of 0.94, 0.88, 0.91, and 0.90, respectively.

The work environment was measured using 10 questions about negative factors at work, used in the survey of living conditions by Statistics Sweden. These questions provided an assessment of the general work environment, high scores indicating that the work environment was good (through absence of a number of negative factors). The 10 items of the "negative factors at work" scale were rated on a three-grade scale as follows; 1 = clearly, 2 = not so much, and 3 = does not apply. Examples of items were "My boss or manager treats me in a derogatory fashion", "I often end up being in conflict with my superiors", "There is nobody to talk to if I have personal problems", and "The staff turnover in my workplace is high". Factor analysis has shown that the items constitute one factor, and the 10 items were summed. Social support at work was measured by six questions (25). Decision authority was measured by questions regarding decisions at work (26). Questions regarding demand, decision authority, and skill discretion were used as well to calculate an index of demand-control (sum of decision authority and skill discretion) (27).

Persons referred for psychological support after a robbery

Workers (N=200) who had previously been treated after experiences of robbery in the workplace were contacted retrospectively as part of a quality control program (28). Altogether 148 persons (74%) returned the questionnaires. The brief questionnaire had questions about satisfaction with the intervention, as well as self-rated function (PSOM) and subjective recovery after the incident. There were also questions about sick leave after the incident, as well as brief measures concerning support from employers, colleagues, and significant others after the incident.

Results

Cross-sectional study

Among the respondents, 12 of 216 men (5.6%) and 102 of 1361 (7.5%) women reported exposure to robbery in the workplace. The gender difference was not significant. According to the reports, 68% of the robberies had occurred within the past 10 years. There was no difference in age between the workers with and without exposure to robbery. The percentage of the participants who did not report any potentially traumatic events was 38.2% (634 of 1705). Only 20 persons (1.3%) had robbery as the only reported traumatic experience. The mean number of traumatic experiences was 1.76 (range 0–15).

The workers who had experienced a robbery scored themselves significantly higher on the PTSD checklist ($Z = -4.959$, $P = 0.000$), the Hopkins symptom checklist for anxiety ($Z = -2.985$, $P = 0.003$), and the Hopkins symptom checklist for depression ($Z = -2.090$, $P = 0.037$), but there was no difference with regard to self-rated function on the PSOM questionnaire. The workers who had experienced a robbery reported that they felt threatened or unsafe in their workplace significantly more often than others, without differing with regard to any other work-environment measures, nor did they differ with regard to sick-leave prevalence during the previous 3 months.

The odds ratio (OR) for PTSD among the participants who had experienced a robbery was 3.27 [95% confidence interval (95% CI) 0.64–16.80] for the men and 2.15 (95% CI 1.24–3.72) for the women. The proportion of participants with exposure to robbery was 14.2–16.4% (depending on the chosen cut-off point) of the total number of PTSD cases in the sample. Those who scored above the cut-off for PTSD reported a higher number of potentially traumatic events (non-PTSD: 1.60, PTSD: 3.55, $P = 0.000$). Of the total number of reported events ($N = 3002$), 260 (8.66%) happened in the workplace.

For the whole group, there was a significant, moderate negative association between symptoms of PTSD, depression, and anxiety on one hand and psychosocial factors or social support in the workplace, influence, demand, skill discretion, and decision latitude on the other. A history of having been exposed to robbery did not influence the scores for psychosocial factors or social support in the workplace, influence, or demand-control. However, for the participants exposed to robbery, those without PTSD reported a better atmosphere in the workplace, as well as a higher level of social support, with no difference with regard to influence in the workplace or the demand-control model (table 1).

In the whole group, the participants with PTSD (including those without any experience of robbery) also scored significantly lower than others with regard to psychosocial factors or social support in the workplace. They also scored significantly lower than the others with regard to influence, and, in addition, they reported a significantly more unfavorable demand-control balance than others. When the participants who had experienced a robbery were excluded from this analysis, the pattern essentially remained.

The workers who were exposed to robbery and who reported debriefing did not differ with regard to self-reported PTSD symptoms, symptoms of anxiety, depression, and self-rated functional level when they were compared with those who did not report debriefing. However, when the whole group was taken into consideration, including the participants who had experienced

debriefing after any event, there was still no difference with regard to PTSD or anxiety symptoms, whereas this group had significantly lower levels of depression ($Z = -2.107$, $P = 0.035$), as well as a higher self-rated functional level ($Z = -2.757$, $P = 0.006$), than those who had not undergone debriefing.

To explore the possibility that debriefing may be associated with a generally good work environment, we compared the participants with and without debriefing with respect to their ratings of the work environment. For the 18 (of 69) who reported both robbery and debriefing, social support in the workplace was rated higher among those who reported debriefing ($Z = -1.987$, $P = 0.047$) than among those who reported robbery but no debriefing. In the larger group who responded to a question about debriefing (50 of 334), no significant differences were found with regard to any of the work-environment parameters. However, in a multivariate model with debriefing as the independent variable and health indicators as dependent variables, there was again a positive statistically significant effect for debriefing with respect to depression ($df = 1/410$, $F = 4.117$, $P = 0.043$) and self-rated functional level (PSOM) ($F = 6.060$, $P = 0.014$) (table 2).

The responses to the PSOM questionnaire remained significant when social support was introduced as a covariate. Social support in the workplace was a strongly significant predictor of all health measures, the F values ranging from 14 to 50, while debriefing did not attain significance, apart from self-rated functional level (PSOM, $F = 4.103$, $P = 0.044$).

After dividing the latter participants into two groups, depending on whether they had declared themselves healthy before the trauma or not, the largest explained variance of self-rated function was found in the “not healthy” group ($R^2 = 0.165$) when they were compared with the “healthy” group ($R^2 = 0.012$).

Table 1. Difference in the work environment between those with and those without posttraumatic stress disorder (PTSD) among the persons who had reported exposure to a robbery.

	PTSD			Non-PTSD			t-test	P-value
	N	Mean	SD	N	Mean	SD		
General work environment	14	25.8	4.48	76	27.5	2.15	2.265	0.026
Social support in the workplace	16	6.3	2.92	76	8.1	2.80	2.367	0.02
Influence	15	20.9	4.36	73	19.3	4.74	-1.148	0.254
Demand-control	11	1.0	0.45	59	0.8	0.25	-1.454	0.173

Table 2. Self-reported health among those with and those without debriefing after a reported incident. [PSOM = positive states of mind (questionnaire), HSCL-25 = Hopkins symptom checklist-25, PTSD = posttraumatic stress disorder]

	Debriefing						t-test	P-value
	Yes			No				
	N	Mean	SD	N	Mean	SD		
Self-rated psychological function (PSOM)	60	14.65	3.44	365	13.16	4.20	-2.61	0.009
Anxiety (HSCL-25)	63	16.00	6.73	371	16.87	6.17	1.01	0.312
Depression (HSCL-25)	63	23.89	9.33	370	26.91	10.69	2.11	0.035
PTSD (PTSD checklist)	61	31.88	15.27	364	33.57	13.97	0.856	0.393

Retrospective study

In a follow-up study of persons who had been exposed to robbery, questions were asked about sick leave, as well as about support from managers, colleagues, friends, and family, after the event. Altogether 68 (46%) indicated that they were on sick leave after the robbery; 75% of the workers on sick leave were absent for less than 20 days.

The support from managers was rated as good or excellent by 76 of 141 (53.9%) persons. There was a significant correlation between poor support from managers and a long duration of sick leave ($\rho = -0.43$, $P=0.000$). Support from colleagues was related to sick leave ($\rho = -0.34$, $P=0.000$). Support from friends and significant others had no association with the duration of sick leave. Self-rated functional level (PSOM) was associated with support from managers ($\rho=0.31$, $P=0.000$) and coworkers ($\rho=0.26$, $P=0.005$).

Discussion

In summary, this study showed that having experienced a robbery is associated with a perceived lack of safety at work without the ratings of other aspects of the work environment being influenced. The odds ratio for PTSD showed a two- to threefold elevation after a robbery, and this finding is in accordance with those of other studies.

This study showed that people with PTSD rate their work environment as poorer with regard to general negative factors and social support, but not with regard to influence or the balance between demand and control. It thus seems that the persons with PTSD experience less social support even when they report similar work

conditions from other important points of view. It is thus plausible that their reporting cannot be explained by subjective bias, since it should influence other ratings of the work environment.

However, the workers who did not report robberies, but who scored above the cut-off for PTSD due to other negative life events outside the workplace, also reported poor social support and a poor general environment (ie, the same pattern as those who reported a robbery and had PTSD).

There is thus a possibility that a lower level of social support was a factor associated with the PTSD diagnosis. This association could be due to withdrawal and avoidance among persons with PTSD.

van der Ploeg & Kleber (18) carried out a longitudinal study among ambulance personnel. In this study, PTSD symptoms at follow-up were predicted (apart from PTSD symptoms at baseline) by poor communication, and to a less extent, high emotional demands. A lack of social support from colleagues and supervisors was associated with almost all of the health variables.

Broberg et al (29) found similarly that social support (at school) was negatively related to PTSD symptoms at follow-up after a discoteque fire. Several studies of different populations exposed to traumatic events point in the same direction (30–33); for instance, few did not show any relation between development of PTSD and social support after intensive care for respiratory distress (34) and among mothers with leukemic children undergoing bone marrow transplant (35). In the latter study, received—not perceived—social support was registered, and the authors speculated that it may be important. However, in the early phase, negative reactions from a partner or family were clearly associated with PTSD symptoms.

Theorell et al (36) found that, after incidents involving a person under a train, subway train drivers initially perceived a lot of social support. However, in the later phase, after 6 months or more, when the negative health consequences are more pronounced, they reported that people around them expected they had recovered and showed less understanding. The distance in time might thus confound the association between cause and late health effects, making long-term monitoring of the work environment important in follow-up studies of traumatic stress at work.

Our present study also showed that good workplace psychosocial factors and social support were protective factors in both a cross-sectional and a retrospective analysis.

In other words, it seems to be important to try to measure actual—instead of perceived—social support when the effects of social support are explored. The role of support in the long term is important to understand. Is *perceived* social support confounded by social

withdrawal or avoidance inherent in the C cluster of the PTSD symptoms?

The question is “Can social support be prescribed and will it prevent PTSD?” Currently, neither our study nor other studies support such a notion; but it is an important question in future studies of the work environment.

If *perceived* social support is simply related to PTSD, then what if debriefing is part of a supportive and well-structured work environment? It is then hardly surprising that it was difficult in the scientific literature to show effects of debriefing above and over the effects of psychosocial factors and social support in a number of studies. However, in our study, debriefing showed an effect on self-rated psychological functioning in spite of not having any effect on PTSD. How should this finding be interpreted? Maybe debriefing has an affect on the cognitive distortions that can arise after a traumatic event.

Our primary conclusion is that psychosocial factors in the workplace, such as an absence of negative psychosocial factors and reported social support, exert an ameliorating effect on PTSD symptoms. The findings are supported by the fact that the workers exposed to a robbery, as well as those with PTSD, did not report differently from others with regard to other work environment characteristics, such as demand–control. This finding may support the assumption that the ratings are valid and probably unbiased by the presence of exposure to robbery or a PTSD diagnosis.

Another conclusion concerns debriefing, the usefulness of which has been questioned recently. In our study, several persons reported debriefing after negative events, not only robbery. Those who participated in debriefing seemed to be less depressed and to rate their psychological functioning as better than those who also reported such events but had not undergone debriefing. In future studies of debriefing, it is important to control for the quality of the work environment and social support at work and to measure other aspects than merely PTSD symptoms. It was found that people who report that they are not healthy before debriefing seem to have a more pronounced effect. However, since we do not have data on what the persons actually perceived as debriefing, it is difficult to draw any conclusions from this finding.

In conclusion, in this study of traumatic stress in the workplace, psychosocial aspects (such as social support and good leadership) of the work environment are inversely associated with self-reported symptoms of PTSD. People who have reported a robbery but do not have PTSD rate their work environment in a manner similar to that of others. People with PTSD rate their psychosocial work environment as poorer, but do not differ from others on measures of influence or demand–control balance. Debriefing after critical incidents did not show any positive effect on PTSD symptoms,

but there may be an independent effect on self-rated function and depression, and this possibility should be assessed in future studies. The effect of the work environment on PTSD symptoms must be assessed in future studies of debriefing.

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