

Review article

Effectiveness of psychological debriefing

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Objective: To identify literature concerning the effectiveness of psychological debriefing (PD) and analyse results according to different criteria of success and different uses of the intervention format.

Method: Literature search was made in databases PubMed, PsycInfo and Psychlit. Twenty-five studies were selected for a thorough description. Forty-two studies provided additional information.

Results: Results indicate that, in general, debriefing does not prevent psychiatric disorders or mitigate the effects of traumatic stress, even though people generally find the intervention helpful in the process of recovering from traumatic stress. The intervention holds potential as a screening procedure, and there may be economic arguments for continued use. When used with adherence to traditional descriptions of treatment group, events, group format, leadership and time spent, a preventive effect emerges. No tendency according to timing was found.

Conclusion: Current uses of PD are problematic. The concept needs to be redefined, and the scope of application must be revised. The objectives for use need to be clarified.

M. Arendt¹, A. Elklit²

¹Danish Red Cross and Department of Psychiatric Demography, Institute for Basic Psychiatric Research, Psychiatric Hospital in Aarhus, University Hospital and

²Department of Psychology, Aarhus University, Denmark

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Mikkel Arendt, Department of Psychiatric Demography, Institute for Basic Psychiatric Research, Psychiatric Hospital in Aarhus, Skovagervej 2, 8240 Risskov, Denmark

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Introduction

The efficacy of psychological debriefing (PD) has been subject to extensive debate in recent years. The controversy started with articles by Bisson and Deahl (1) and Raphael et al. (2), in which it was concluded that the empirical documentation for the effect of the method was next to non-existent. Later, Wessely et al. (3) evaluated the randomized and controlled trials of brief psychological crisis interventions, and concluded that there was no evidence that debriefing can prevent trauma-related symptoms, such as PTSD. On that basis, they further recommended that the use of PD should cease. The creators of the method, on the other hand, have published several reviews allegedly showing that PD is indeed effective (4–7).

The controversy about the interpretation of the existing effect studies seems to arise from two main sources. The first is a lack of consensus about relevant evaluation criteria.

The inventors have proposed several different intended effects of which some are, at least partly, incompatible. This has important consequences for the assessment of the efficacy of the method.

Four such different criteria for success can be identified. The primary purpose of PD is the

prevention of disorders that may come about in the wake of traumatic stress, such as PTSD (5, 8). In close relation to this, PD has a *screening* function. By gathering people after critical incidents, it becomes possible to single out subjects who should be referred to further treatment (9, 10).

Further, there is a range of diffuse and less explicit aims of PD such as *normalization of reactions* (8, 10), *verbalization of the experiences* (11) and improvement of *group support* and cohesion (12, 13). These aspects of PD are related to the fact that the method is not considered to be psychotherapy. Instead, the intervention is conceptualized as a discussion involving didactic elements for 'normal individuals with normal reactions to abnormal events' (9, 10).

Finally, *economic* incentives have been stressed in several papers, meaning that the use of PD has been advocated as a way of reducing turnover and saving resources within certain organizations (6, 14, 15).

There is, of course, some degree of overlap between these aims. In addition, there is undoubtedly some discrepancy between the intended effects. For example, seeking to prevent pathology seems meaningless if the reactions presented are normal. In any case, different conclusions about the efficacy

of PD may result from the use of different criteria of success.

The other main reason for the controversy over the effectiveness of PD arises from the uncertainty as to what the concept of PD refers.

Mitchell introduced the debriefing concept in 1983 (8), while Dyregrov later coined the term PD (12). The intervention was originally developed for professional 'helpers', such as firefighters, soldiers, policemen, etc. Initially, the method was defined both in terms of a specific structure consisting of 6–7 phases and by additional features. Aside from the fact that PD was developed for professional 'helpers', it was characterized by consisting of a single session taking place 24–72 hours after critical incidents. In addition, PD was designed explicitly as a group intervention led by professional therapists in co-operation with specially trained people from within the organizations to which the helpers belonged. These aspects of the intervention, apart from the phase-structure, will be referred to as 'defining features'. However, there have been substantial deviations from these since the introduction of the method, resulting in uncertainty as to what the term PD denotes besides the use of the phase-structure and, hence, whether effectiveness concerns debriefing in its traditional form or in its present use.

In this paper, the efficacy of PD will be evaluated based on the existing empirical investigations. Many of these studies have been published in recent years, and are therefore not included in previous reviews. The above-mentioned aims of PD will be used as evaluation criteria, and results from studies of traditional use of the intervention will be compared with results from present use.

Material and methods

Relevant studies were found using the databases PubMed (1966–2001), PsycInfo (1967–2001) and Psychlit (1976–2001), with the following key words: debriefing, brief crisis intervention, acute crisis intervention, brief trauma intervention, acute trauma intervention, CISD and CISM. Based on articles found in the database search, extensive cross-referencing was made.

Criteria for inclusion

The search process resulted in approximately 70 effect studies of varying degrees of relevance and methodological quality. Investigations were divided into three categories according to the following criteria.

Category A. The methodologically soundest studies. Controlled design, preferably with randomization, longitudinal design and standardized measures. Two studies have been included in category A without being controlled (16, 17). In both instances the specific designs used makes it possible to establish an estimate of preventive effect.

Category B. Uncontrolled design, case studies or evaluations of the perceived helpfulness/degree of satisfaction with PD.

Category C. Evaluations of other types of acute short-term crisis intervention.

Data from category A studies will be reviewed extensively, while some of the category B and C studies will be mentioned briefly during the effect evaluation (see Appendix 1 for complete list). Case studies and studies using treatment that only marginally resembles PD will not be evaluated, but are included in the Appendix.

Results

Twenty-five investigations were included in category A (see Table 1). A more detailed account of each one of them is provided elsewhere (18). Based on these, the effectiveness of PD will be evaluated according to different criteria of success. After this, the significance of different uses of PD will be assessed.

Psychological debriefing as a preventive strategy

The main argument for the use of PD has been to prevent the development of trauma-related psychological problems such as PTSD. The afore-mentioned investigations will be examined to establish whether this objective is met, and the results of categories B and C studies will be mentioned briefly.

Studies finding no effect/negative effect. In the list above, the results of each study have been summed up using a scale with three positive and three negative categories, ranging from weak indication of effect, over indication of effect to substantial proof of effect. Besides, a number of studies showed no effect of the treatment offered.

In seven of the studies *no effect* of treatment was found (25, 27, 28, 33, 36, 40, 42). In addition, one investigation (38) showed no effect of treatment, despite a possible positive effect resulting from offering PD.

Five studies reported *negative effect* of PD. Weak indications were found on three occasions (30, 35,

Table 1. Controlled studies of the effectiveness of PD

Author	Population, design, measures*	Treatment	Results**	Effect***
Alexander & Wells 1991 (19); Alexander (20)	71 police officers involved in body-handling duties. Non-affected control group. Measures from before incident and at 3 months and 3 years fu., HADS, EPQ, IES, ways of coping (NS)	PD led by colleague. Details not specified	Significant decline on IES ($P < 0.0001$) and HADS in affected group	Weak indication of positive effect
Bisson et al., 1997 (21)	165 acute burn trauma victims. Randomized-controlled, blind evaluations at time of PD and at 3 and 13 months fu., HADS, IES, CAPTSD	Individual PD, one session lasting 44 minutes on average, 6 days after trauma on average, led primarily by 5 nurses but also by a psychiatrist	Groups differed at baseline on dimensions related to the trauma (e.g. degree of burn) and past trauma. Less satisfaction in PD group after 13 months ($P < 0.005$). Worse scores of anxiety, depression, IES and higher PTSD rate in treatment group after 13 months (all $P < 0.05$). Longer duration of PD ($P < 0.001$) and proximity in time ($P < 0.05$) predictive of worse scores. 52% found PD 'definitely useful'	Indicates negative effect of PD, in spite of satisfaction with treatment
Bohl, 1991 (22)	71 police officers who had experienced various traumatic events. Controlled. Measured at 3 months with STAI, BDI & NPI	PD in groups, one session lasting between 1 and 1½ hours, within 24 hours of traumatic incident, led by professional therapist	Less anger ($P < 0.05$), depression ($P < 0.01$) and stress ($P < 0.01$) in treatment condition	Positive effect of PD
Bordow & Porritt, 1979 (23)	70 victims of traffic accidents. Randomized control. Measured within a week and at 3 months fu., LPSS, LSS, LWPS, BPAS, MHCQ, TNS, social support (NS), length of stay at hospital, return to job	2–10 hours of individual supportive counselling shortly after the incident	Treatment group fared significantly better at 3 months fu. on all standardized measures (all $P < 0.001$)	Positive effect of treatment
Carlier et al., 1998 (24)	105 police officers involved in rescue activities following a plane crash. Self-selection to treatment group/control group. Measured at 8 & 18 months fu., SI-PTSD, ADIS-R, GHQ, SCL-90, LEAIQ, degree of exposure (NS)	PD in groups as soon as possible after exposure, one session, two leaders out of 7 volunteer social workers and one psychologist	No difference in rate of PTSD at either 8 or 18 months. More trauma related hyperarousal ($P < 0.05$) and depression ($P < 0.05$) in PD group at 18 months. More people in PD group, felt worse at fu. than before the event, as measured by LEAIQ. Worse scores in PD group on SCL-90 measures of agoraphobia ($P < 0.05$), distrust ($P < 0.05$) and anger ($P < 0.05$)	Negative effect of PD
Carlier et al., 2000 (25)	243 police officers involved in various job related incidents. Self-selection to treatment/control groups. Blind assessments before PD, immediately after and fu. at 1 week and 6 months using STAI, SRS-PTSD, IES, PDEQ-R, SI-PTSD, ADIS-R, background variables and satisfaction with PD (NS)	Individual PD. 3 sessions: within 24 hours, and at 1 and 3 months. Lasting 41, 17 and 16 minutes on average. Led by police officers	Groups differed on a number of demographic, event and work related parameters. No differences between groups at 24 hours post-trauma. Higher rate of re-experiencing and 'loss of recall' in treatment group than in control groups at 1 week post-trauma. No differences between groups 6 months post-trauma. 98% were satisfied with the first and second session, 88% with the third, the rest were satisfied to a degree. No correlation between satisfaction and level of symptoms, rate of sick leave or resumption of work	No effect of PD despite of satisfaction with treatment
Chemtob et al., 1997 (26)	51 hurricane victims. Cross sectional and longitudinal design. Group 1 received treatment after 6 months and fu. at 9 months, group 2 were treated after 9 months, and were measured for fu. at 12 months. At all times IES was used for assessment	PD in groups, one session lasting 5 hours, led by psychiatrist, performed 6 or 9 months after the traumatic incident	Both groups improved on IES scores from treatment to fu. At 9 months the debriefed group scores significantly lower on IES than non-debriefed group ($P < 0.0001$). Also improvement for people scoring high on IES (over 25) from treatment to fu ($P < 0.005$)	Positive effect of PD
Conlon et al., 1999 (27)	40 victims of road traffic accidents with minor injuries. Randomized control. Measured at 1 week and 3 months fu. IES, EPQ, CAPS-I	Individual counselling (called PD), one session lasting approximately 30 minutes on average, following initial assessment	No differences between groups on any variable reflecting PTSD related morbidity at fu.	No effect of treatment
Deahl et al., 1994 (28)	74 soldiers involved in body-handling and identification during the Gulf War. Controlled. Measured 9 months after PD using IES, GHQ, satisfaction with PD (NS)	PD in groups, led by psychologist, psychiatrist, priest or social worker	No difference between groups after 9 months on either IES or GHQ. 50% found that PD had been helpful	Indicates no effect of PD, in spite of some satisfaction with the intervention

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Deahl et al., 2000 (29)	106 soldiers returning from peacekeeping duties in the former Republic of Yugoslavia. Controlled with less than optimal randomization, blind assessments at fu. Measures completed prior to PD and at 3, 6 & 12 months fu. HADS, IES, PTSS10, SCL-90, CAGE, CAPS	PD in groups, lasting 2 hours, led by experienced debriefers, performed immediately upon return from service in war zone	Significantly more in non-PD group had experienced intense distress ($P < 0.01$). At 6 months SCL-90 scores were elevated in non-PD group ($P < 0.05$) and HADS scores were significantly higher compared with a decrease in the treatment group ($P < 0.01$). After one year IES scores had decreased in the non-PD group, while there were no changes in the debriefed group ($P < 0.001$). CAGE scores were significantly lower in PD group after 1 year, indicating lower degree of alcohol abuse ($P < 0.05$)	Weak indication of positive effect
Hobbs et al., 1996 (30); Hobbs & Adshead, 1997 (31); Mayou et al., 2000 (32)	114 victims of road accidents. Randomized control. Measured just after intervention, at 4 months and 3 years fu., IES, BSI, GSI, semi-structured interview (NS)	Individual PD, one session lasting approximately 1 hour, 24–48 hours after incident, led by nurse, social worker or research assistant	Treatment group stayed at hospital twice as long as control group and had more severe injuries. No difference between groups on IES or GSI at 4 months fu. Levels of anxiety ($P < 0.05$) and somatisation ($P < 0.05$) had declined more in non-treatment condition between baseline and 4 months fu., while levels of hostility ($P < 0.05$) and psychoticism ($P < 0.05$) had risen in the treatment group. People in treatment condition were less likely to talk to family or friends about the experience ($P < 0.05$). At 3 years fu. patients in treatment condition with high initial scores on IES had a marginally worse outcome on IES than controls with high IES scores at baseline ($P < 0.07$). People in PD group reported marginally more severe psychiatric symptoms at 3 years fu ($P < 0.07$), more severe pain ($P < 0.005$), had recovered less well ($P < 0.05$), reported more impaired functioning ($P < 0.01$), and had greater financial problems as a result of the accident ($P < 0.01$)	Weak indication of negative effect of PD
Hytten & Hasle, 1989 (33)	58 volunteer firemen participating in a hotel fire rescue operation. Controlled. Assessed 7–21 days after incident, IES, measures of training (NS), physical strain and stress during incident (NS)	Treatment is called PD, but details are not provided	No difference on IES scores between PD group and group of people who had just talked informally with colleagues after the incident. 97% found PD 'helpful' (36%) or 'very helpful' (61%)	Indicates no effect of PD, in spite of great satisfaction
Jenkins, 1996 (34)	36 emergency medical workers working at the scene of a mass shooting incident. Controlled. Self-selection to treatment group/control group. Retrospective data from week before incident, 8–10 days fu. and 1 month fu., SQ, SCL-90, semi-structured interview (NS)	PD in groups within 24 hours of the incident, led by professional. Many details missing	People in treatment condition reported fewer feelings of helplessness 8–10 days after the incident, and were less anxious ($P < 0.05$) and depressed ($P < 0.05$) after 1 month. About half of the people in the treatment condition spontaneously indicated that PD had helped them cope with the incident	Indicates positive effect of PD, and great satisfaction with the intervention
Kenardy et al., 1996 (35)	195 professional helpers working after an earthquake. Self-selection to treatment group/control group. Assessments at 27, 50, 86 and 114 weeks after the incident. IES, GHQ-12, satisfaction with PD (NS)	Treatment is called PD, and people in treatment condition received 1.5 sessions on average. Further details are missing	More rapid reduction in GHQ-12 scores in the group that was not debriefed. 80% found PD to be helpful ('somewhat helpful' (46%) or 'very/extremely helpful' (34%)), while 20% found PD to be 'not at all helpful'	Weak indication of negative effect of PD, in spite of satisfaction with intervention
Lee et al., 1996 (36)	60 women who had miscarried during pregnancy. Randomized control. Assessment after 2 days and fu. after 4 months. HADS, IES, RMQ, POC (NS)	Individual PD, one session lasting about an hour, led by psychologist and held approximately 2 weeks after the miscarriage	No difference between groups on HADS or IES at fu. More subjects in the treatment group felt that they had had the opportunity to talk about feelings related to the event. On a scale ranging from 0–100 the average score was 74, on the helpfulness of PD	No effect of PD in spite of satisfaction with the intervention
Leonard & Allison, 1999 (37)	60 police officers involved in shooting incidents. Self-selection to treatment group/control group. Measurements were performed once at various points after different traumatic incidents	Many different PD sessions, led by psychologists with assistance from colleagues in some instances. Details about PD sessions are not reported	There was no overall difference between the two groups in coping strategies used. However, the PD group used the adaptive strategies 'active coping' ($P < 0.05$) and 'positive reinterpretation and growth' ($P < 0.01$) more often. Further, the PD group had a reduced level of anger ($P < 0.05$). 53% in the PD group did not think that the intervention had made a difference to their way of coping	Weak indication of positive effect on the coping mechanisms used Moderate level of perceived helpfulness

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Matthews, 1998 (38)	63 direct care psychiatric workers, all victims of assaults. Comparison of group that received PD, group that rejected treatment, and group that was not offered treatment. Data collected about a week after the assault using shortened version of IES (9 items), satisfaction with PD (NS)	PD in group with possible individual follow-up sessions. Information about length, timing and leadership are not reported	People that were not offered treatment reported significantly higher degree of symptomatology, than the two other groups. 57% found that PD had helped reduce the stress associated with the trauma, while the remaining 43% responded negatively	Indicates that offering PD may have a positive effect. Moderate level of perceived helpfulness
Nurmi, 1999 (39)	133 professional helpers involved in rescue operation. Controlled. Data collected shortly after incident, IES-R, PI, SCL-90-R, satisfaction with PD (NS)	Debriefings were allegedly according to Mitchell's CISD model, and took place 3–7 days after the incident, but details are not provided	Characteristics of people in the groups differed considerably. Control group consisted of nurses while treatment groups consisted of helicopter pilots, firefighters and police officers. Scores on all measures were significantly higher in non-treated control group; IES-R ($P < 0.01$), SCL-90-R ($P < 0.001$) & PI ($P < 0.001$) 95% were satisfied with treatment, while 5% were dissatisfied	Weak indication of positive effect. Great satisfaction with the intervention
Rose et al., 1999 (40)	157 victims of violence. Randomized control. Pre-treatment data and 6 & 11 months fu. using PSS, IES, BDI, satisfaction with PD (NS)	Individual PD lasting approximately 1 hour, and taking place within a month of the trauma. Led by psychologist or social worker trained for the study	Out of 2161 contacts, 157 (7, 3%) chose to participate. 41% drop-out at 11 months fu. No significant differences between groups at 6 or 11 months on any measure. Satisfaction with 'treatment' did not differ significantly between groups	No effect of treatment. Satisfaction unrelated to kind of 'treatment'
Shalev et al., 1998 (16)	41 soldiers exposed to combat. No control group. Data from just before and just after treatment using IES, STAI-state, PDEQ, PSS-F, SELF-C, EXP, CEV	'Historical Group Debriefing' in groups 48–72 hours after combat exposure, lasting 2½ hours on average, led by professional counsellors	Treatment was followed by a significant reduction in STAI-state scores ($P < 0.05$) and an increase in SELF-C scores ($P < 0.001$)	Indicates positive effect of treatment, resembling PD
Small et al., 2000 (41)	917 women who had given birth by operation. Randomized control. Data from 6 months after treatment using EPDS, SF-36, satisfaction with PD (NS)	Treatment led by midwife, taking place while at hospital and lasting up to 1 hour. 'Debriefing' consisted of discussion of labour, birth, and post-delivery events and experiences in an unstructured manner	No difference between groups at 6 months fu. except worse scores for role functioning in treatment condition ($P < 0.05$). 6% rated treatment as 'unhelpful', 43% as 'helpful' and 51% as 'very helpful'	Weak indication of negative effect of treatment. High degree of satisfaction
Stallard & Law, 1993 (17)	7 school children involved in a bus accident. No control group. Pre-treatment data, and fu. after 3 months using IES, BiDI, R-CMAS	Two sessions of PD in groups each lasting about 2 hours, performed 6 months after accident, led by psychologist and psychiatrist	PD was followed by significant decreases in scores on all measures at 3 months fu. IES-intrusion ($P < 0.01$), R-CMAS ($P < 0.05$), BiDI ($P < 0.01$)	Weak indication of positive effect
Stevens & Adshear, 1993 (42)	74 victims of traffic accidents, assaults by stranger, or dog bites. Randomized control with blind assessments. Measured after 1 week, 1 month and 3 months, ISS, IES, BDI, SEQ, satisfaction (NS)	Individual counselling within 24 hours of incident, led by experienced counsellor	People in treatment condition with high BDI and SEQ scores at baseline were significantly better of at 3 months fu., than people in non-treatment condition. Otherwise no significant differences between groups at any time 66% were satisfied with treatment, while 33% were not	Indicates possible effect for the most traumatized, and otherwise no effect. Pretty high degree of satisfaction
Wee et al., 1999 (43)	65 emergency medical service workers who had been working during the Los Angeles Civil Disturbance. Self-selection to treatment group/control group. Data collected 3 months after incident using FRI-A, facts related to incident (NS)	PD led by team consisting of colleagues and psychologists/psychiatrists. Details are not provided	The treatment group had significantly lower degree of symptoms ($P < 0.05$)	Weak indication of positive effect
Yule, 1992 (44, 45)	39 child survivors of shipping disaster. Controlled. Data gathered 5–9 months after incident, FSSC, IES, BiDI, R-CMAS	PD-like treatment in groups 10 days after disaster, led by psychiatrist. Follow-up treatment provided but details missing	Significantly lower IES scores ($P < 0.01$) and FSSC scores ($P < 0.05$) in treatment group	Indication of positive effect of PD-like treatment

*fu. = follow-up, NS = non-standardized. See Appendix 2 for list of measures used.

** P -values have been rounded-up.

***Summed-up by the authors based on methodological strength and levels of effect obtained. A scale with seven categories ranging from negative effect, over no effect, to positive effect was used.

41), while the report by Bisson et al. (21) indicated negative effect. Finally, in one of the investigations by Carlier et al. (24), the most marked negative results were reported.

Negative effect was also found in category B studies. A study by McFarlane (46) indicated a possible negative long-term effect of PD, despite a positive effect shortly after the treatment. Lastly, O'Callahan (47) found negative effect in a case description.

Further, researchers investigating other types of acute short-term crisis interventions have found no effect (48–52). One study (51, 52) even concluded that the treatment offered might have been harmful.

Studies finding positive effect. Several investigations have found *positive effects* of PD. The designs of these studies are generally weak, with the use of self-selection for treatment/control group, or even without the use of control groups. Thus, most of the positive results are indices.

The results of six studies from category A all gave weak indications of a positive effect of PD (17, 19, 29, 37, 39, 43). Jenkins (34) and Shalev et al. (16) found more pronounced positive effects, and investigations by Bohl (22) and Chemtob et al. (26) both found substantial positive effects.

In a number of studies, the effect of acute short-term trauma interventions resembling PD have been investigated. Two of these are included in the list above. Bordow and Porritt (23) provided 2–10 hours of individual supportive counselling, and found substantial effect, and Yule (45) found some positive effect following a PD-like intervention.

Other studies not included in category A, either because of weak methodology or because the treatment was dissimilar to PD, have also reported positive effect. Solomon and Benbenishty (53) found positive effect from treatment based on the principles of 'proximity, immediacy and expectancy'. Bunn and Clarke (54) found a weak indication of positive effect after 20 minutes of individual counselling following trauma.

Finally, two controlled studies of cognitive therapy programmes, by Foa et al. (55) and Bryant et al. (56) over four and five sessions respectively, have documented substantial positive effect.

The main argument for the use of PD is to prevent PTSD or related disorders to develop following traumatic incidents. The available empirical studies of the effect of the intervention do not suggest that this objective is met. Lack of effect, or even negative results, occur more often than sound positive results. However, studies finding positive as well as negative outcomes generally have small

effect-sizes and are hampered by severe methodological problems.

Psychological debriefing as a screening procedure

Few conclusions can be made about the effect of PD as a screening procedure on the basis of the existing effect studies. The main reason for this is probably that the research papers all focus on the isolated effects of PD, and as a consequence seeks to avoid additional treatment in the follow-up period.

Only one of the studies listed above indicated that PD had a screening function (25). Other investigations (57, 58) mention briefly that successful screening was performed in relation to PD sessions.

While there is potential for screening of people in need of further treatment in connection with debriefings, it is therefore uncertain whether this objective is met.

Psychological debriefing as normalization of reactions, verbalization and improved group support

There are, as already mentioned, a number of intended effects of PD besides prevention. They are related to the view that reactions to traumatic stress are normal and do not lead to serious disorders for most people, but that it nevertheless may be helpful to talk about the experienced events and learn about reactions.

The fact that there are so many loosely defined aims, besides prevention, makes it difficult to establish whether or not they are met. In the following paragraph, this difficult question will be approached in different ways. First, a large number of investigations have tried to evaluate whether people are satisfied with PD. If the subjects perceive the intervention as helpful, it may indicate some sort of effect. In a handful of studies, people are asked more specifically if the intervention helped to reduce the perceived level of acute stress. Other researchers have estimated the connection between perceived helpfulness and level of symptoms. Finally, the exact way in which PD is found to be helpful has been analysed in some studies.

Perceived helpfulness. In many of the listed studies the subjects were asked whether they were satisfied with PD. Typically they were requested to answer 'yes' or 'no' to this question. Alternatively, people were asked to estimate the degree of helpfulness on a Likert-scale.

Using these procedures, a number of investigators have found from moderate to very high degrees of satisfaction with PD (21, 25, 28, 33, 35, 36, 39, 41). In addition, 11 category B studies have assessed the perceived helpfulness. A high to very high

degree of satisfaction is found in all of these research papers (7, 59–68).

Only one paper reports that PD may not be particularly helpful. This is the study by Rose et al. (40), where no difference in level of satisfaction was found between treatment and merely being tested for control.

Coping and stress. In other studies, the participants were asked whether PD helped them cope with the traumatic incident, or if it reduced the experienced level of acute stress.

Leonard and Allison (37) found that 53% of the subjects felt that PD had not changed their way of coping, while approximately half of the subjects in the report by Jenkins (34) mentioned spontaneously that PD had helped them cope.

In the study by Matthews (38), 57% felt that PD had helped reduce the level of stress. Three studies not included in category A find even clearer results. Robinson and Mitchell (7) studied two groups of subjects who had received PD and found that 77% and 96%, respectively, experienced that the treatment, at least partly, had helped reduce symptoms. In Hutt (65), 71% felt that PD had helped in dealing with reactions. Finally, in a study by Burns and Harm (69), 82% of the participants found PD helpful in reducing critical incident stress.

Helpfulness and prevention. One might expect that the degree of satisfaction with PD should be correlated inversely with the subsequent level of symptoms. The relationship between the two factors has been addressed in a handful of studies. Significant trends are found in neither one of the three studies included in category A (21, 25, 35).

This relationship has also been addressed in other studies. Hutt (65) found a significant correlation between the level of satisfaction with PD and the anxiety scale in SCL-90 ($P < 0.05$), while in an investigation of another type of short-term treatment, Brom et al. (49) found no correspondence.

On the basis of these results, it seems obvious that a high degree of perceived helpfulness with PD is not in itself indicative of a preventative effect of the intervention. A number of category A studies support this conclusion, in that they demonstrate high degrees of perceived helpfulness in general, but fail to show an overall preventive effect (33, 36, 38, 41, 70).

Helpful aspects. Only five investigations have analysed the perceived helpfulness of different aspects of PD, one of which is included in the list above.

In Burns and Harm's study (69), 22% of the subjects found that learning about stress reactions was helpful, and 58% thought that it had been beneficial to hear about the ways other participants coped with stress. Seventy-three per cent felt that being in a group with other people with experiences similar to their own had been helpful. The most helpful aspects were reported to be hearing others talk about the incident (83%) and talking about the incident (87%).

Robinson and Mitchell (7) asked participants in two treated groups to indicate one aspect out of a range of possibilities that had been most helpful; 0–6% felt that learning about stress reactions had been of greatest importance, and 0–9% thought that improved group support was most helpful. Better understanding of self was most helpful to 12–17%. Once again, the most important aspects were reported to be talking about the incident (17–27%) and talking to others about what had happened (40–42%).

Armstrong et al. (59) found that PD had been somewhat helpful in the sense that it had made it easier to talk to significant others about the experiences, and that learning about coping strategies had been helpful. The results showed further that the most important element was to be given the opportunity to talk about positive aspects of the event.

Hutt (65) asked participants to indicate how helpful different aspects of PD had been on a 10-point Likert scale. Learning methods for coping with stress was given an average score of 4.2. Realizing that reactions were normal was given an average score of 5.5. Talking about reactions and simply talking about the incident were rated to be most important, with average scores of 7.2 and 8.0, respectively.

In Lee et al. (36), the participants valued the opportunity to talk about thoughts and feelings, but the most important aspect was merely to have someone to talk to.

All in all, these results show that educating and seeking to normalize reactions are not what is most important to the participants. Instead, the non-specific aspect of talking to others is clearly more important. There are not sufficient results to establish whether this is preferably carried out in a group setting. As such, the results indicate that it may be, that there are no special advantages related to the way in which PD is organized.

Economic effect of psychological debriefing

Two studies have sought to establish the cost/benefit value of intervention programmes. One of these concern 'Critical Incident Stress Management'

(CISM), in which PD is an important element (5). This study (71) reports a positive economic effect from a programme including debriefing.

In addition, Leeman-Conley (72) found good economic effect from the introduction of an intervention programme. On the other hand, although both Mitchell and Everly (73) and Dyregrov (74) called the intervention offered CISM, there is no mention of either PD or CISM in the report, just as there are no references to either one of the creators of the debriefing method.

Overall, these results indicate that intervention programmes including PD could be effective in reducing costs. The number of investigations is very limited, however, making it impossible to draw any firm conclusions.

Evaluation of different uses of PD

As evident from the list of effect-studies, the concept of PD is currently being used more or less synonymously with acute crisis intervention *per se*. It is not clear when, how and with whom the method is to be used. It is possible that this confusion is responsible for the failure to find a preventive effect. In any case, it can be argued that no firm conclusions can be drawn when comparing different treatment modalities for different traumatic events.

Thus, it is possible that circumstances related to the way PD was originally planned are significant for the efficacy of the method. This possibility will be explored further in this section, in which category A studies adhering to the 'defining features', as described in the introduction, will be compared with studies deviating from them. As evident from the list above details are lacking in a number of studies, but information has been extracted when possible. Prevention will be used as the main evaluation criteria, given that this has been the main argument for the use of PD. The perceived helpfulness of the method is given less attention, as it has been found to be substantial in almost all the investigations that have looked into it.

Treatment group and events. Debriefing was originally developed for use with professional 'helpers' after events occurring in relation to their job, but in recent years it has been used in relation with numerous other types of incidents and trauma victims, for example: direct victims of trauma such as miscarriages, road accidents and violence, as well as relatives to trauma victims. While it is not feasible in this context to divide studies according to trauma type, due to the limited number of investigations, a division between use with professional helpers and others

is made. It is thus assumed that the prior groups share certain similarities in relation to the experienced trauma (trauma occurring in job context, members of a group, risk of trauma well known, professionally trained, often witnesses, etc.).

A number of investigations concern the use of *PD with professional helpers*. Eight of these find some degree of positive effect (16, 19, 22, 29, 34, 37, 39, 43). The availability of treatment was found to have positive effect in the study by Matthews (38), but no effect of the intervention was established. No effect was found in three investigations (25, 28, 33), and some degree of negative effect is found in two other studies (24, 35).

This can be compared with nine studies in which PD was used with direct victims of trauma. Only two of the investigations in category A found that the intervention had some degree of positive effect (17, 26), and in the latter report it may be that the subjects could be classified as professional helpers. Four papers report no effect (27, 36, 40, 70). Finally, three studies find some degree of negative effect (21, 30, 41).

Two category B studies, comparing professional helpers with non-professionals, underscore the possibility that the professional group may react different from other groups, and that debriefing therefore may be sufficient for this group but not for others (61, 75).

On the basis of the described division of studies, certain tendencies emerge. PD is generally found to have some preventive effect when used with professional helpers, but the method seems to be far less effective, or even to have negative effect, when used with other victims of trauma.

Group vs. individual intervention. Findings from studies where PD has been used in other ways than the originally intended group format indicate that this way of using the phase-structure is not advisable. Positive effect is not found in a single study providing PD as a one-to-one intervention.

Four studies found that the treatment had no effect (25, 27, 36, 40), while Bisson et al. (21), Hobbs et al. (30, 31) and Small et al. (41) reported indications of negative effect. Similarly, Stevens and Adshead (70) did not find any effect from a kind of treatment resembling PD.

Number of sessions and duration. The fact that debriefing is limited to one single session is that of the defining features from which there has been the least deviation. There is only one study where the term PD is used and more than more than one session of treatment is provided, possibly

supplemented by a booster session (25). However, the time spent has been limited even further in a number of studies.

In 12 of the listed studies, the time spent is reported. Six of these debriefings lasted 1 hour or less, on average (21, 27, 30, 36, 40, 41). All of them found no/negative effect. In Carlier et al. (25) three short sessions were provided, lasting just over an hour on average when totalled. No effect of treatment was found.

On that basis, it is interesting to note that some degree of positive effect is found in the remaining five studies, where more than 1 hour was spent (16, 17, 22, 26, 29).

It would be erroneous to conclude that the time factor is the only reason for this difference. The first studies all used PD in an individual format, while the latter studies were all performed with groups, for instance. None the less, the results indicate that there might be a minimum as to the time spent on crisis intervention if a positive effect is to be expected.

Timing. That of the defining features which has been subject to most debate is the suggestion that debriefings have to be initiated between 24 and 72 hours after traumatic incidents in order to be effective. Critics have argued that it may be harmful to intervene this early (e.g. 2, 76, 77).

No significant trends emerge by dividing studies according to timing. In eight of the studies, PD took place between 24 and 72 hours. Out of these, four showed some degree of positive effect (16, 29, 34, 37), two showed no effect (25, 28), while some degree of negative results was found in two papers (24, 31).

Bohl (22) found no effect of debriefing within 24 hours of critical incidents; nor did Stevens and Adshead (70) with PD-like treatment. Bordow and Porritt (23), on the other hand, found positive effect with another kind of acute intervention.

In seven of the studies, PD took place more than 72 hours after the traumatic events. Three of these showed positive results to some extent (17, 26, 39), in three other reports no effect was found (27, 36, 40), and one investigation indicated a negative effect (21). Finally, Yule (45) found some positive effect with PD-like treatment that was initiated more than 72 hours after a shipping disaster.

Based on these findings, the claim that debriefing has to take place between 24 and 72 hours after critical incidents has not been substantiated. The reason why this timing was originally recommended has probably to do with the fact that PD originates within professional organizations, where the personnel are expected to return to service as quickly as

possible and where new potentially traumatic situations can occur at any time. In contrast, it is unclear why it has been maintained with the current widespread use of PD. Instead, a more flexible approach, considering the kind of event and the people involved, seems to be appropriate. Mitchell has also stressed this point in his most recent writings. In the newest book by Everly and Mitchell (5), debriefings are suggested to take place between 1 and 10 days after acute crisis, and 3–4 weeks after major catastrophes.

Leadership. Originally it was intended that debriefings should be led by teams consisting of psychologists/psychiatrists (professional therapists) and colleagues/superiors of the professional helpers. There have been deviations from this norm in almost all the existing studies. One person has generally led meetings and in several studies this person has been a volunteer or otherwise non-professional therapist.

In three investigations a team led debriefings. In all of these a positive effect was found to some extent (19, 37, 43).

In seven studies, PD was performed by a psychologist/psychiatrist alone. Six of these showed some degree of positive effect (16, 17, 22, 26, 34, 39), while no effect was found on one occasion (36). Further, Yule (45) reported positive results from PD-like treatment.

In three studies, non-professional therapists or professionals led the debriefings. In two of these, no effect was found (28, 40), and in the third indications of a negative result was found (21). Finally, there are four studies in which non-professional therapists have been in charge of the meetings. One found no effect (25) while in the remaining studies negative effects were found (24, 31, 41).

Once again, clear tendencies appear. It seems that positive effect results from leadership according to the original team concept or by professional therapists. In contrast no effect, or even adverse effect, is found in studies using volunteers or non-professional therapists. It therefore seems appropriate that both Dyregrov (78) and Mitchell and Everly (79) have given special emphasis to this aspect of the intervention.

Discussion

The empirical basis for establishing whether PD is an effective type of treatment after traumatic incidents has been reviewed. In the existing literature, there is a lack of clarity concerning the intended effects, and therefore different evaluation

criteria were used. Major results emerging includes the following.

Neither screening nor economic effects have been sufficiently investigated, but there is a potential for effective screening.

A preventive effect of the method was not found in the existing studies, despite a weak indication of symptom-relief reported in a number of studies.

In contrast, the participants typically evaluate the method as very helpful. However, there is a lack of correspondence between perceived helpfulness and prevention. It was further explored whether the perceived helpfulness arises from the fact that the goals of normalization, verbalization and improved group support are attained. This could not be established on the basis of the existing literature, but there are indications that the aspect of PD perceived to be most important, is the non-specific element of merely talking about the experiences.

Finally, the significance of the traditionally 'defining features' of PD were evaluated. There were indications that the group of people treated, whether debriefing is performed with single individuals or in groups, the time spent and who is in charge, all have significance for the preventive effect obtained. In contrast, no differential effect could be found according to the timing of the intervention.

Thus, researchers seem to reach different conclusions regarding the efficacy of PD, depending on the evaluation criteria used and the degree to which the method is applied in the originally intended way. In the following paragraph these themes will be discussed further.

Prevention as evaluation criterion — problems and limitations

It is difficult to evaluate the screening potential of PD, and this aspect has been given little attention. Although symptoms presenting in the early stages after a trauma could be non-specific and transient, it has been found that the level of symptoms can predict who are at special risk of developing problems subsequently (36, 80–82). In this way, it seems plausible that this goal can be attained, provided that the debriefing-leaders are sufficiently skilled for the job. Consequently, PD might indirectly have a positive effect. On the other hand, the exact nature of the additional treatment to be offered is not specified in the literature concerning PD. Besides, effect in this regard can never be the main argument for using PD, as other types of intervention can be expected to fulfil the same purpose just as well. The same point can be made about the economic aspect.

Thus, the main controversy is between the evaluation criterion of prevention, and the less well-specified goals of normalization, verbalization

and improved group support, since different results regarding the effect arise from the use of these. Certain problems appear with the use of each way of evaluating the effectiveness of PD.

The use of prevention as success criterion and reliance on degree of symptoms in measuring this can be criticized using two types of arguments. First, it can be argued that PD does in fact prevent stress-related disorders, but that methodological problems obscure this fact (73). This argument makes sense in light of the severe methodological deficiencies generally found in the existing studies.

Problems concerning the use of control groups illustrate this point. Ethical considerations make it highly problematic, if not impossible, to perform randomized controlled trials in a number of situations involving severe trauma. Withholding treatment for some people, therefore, is more plausible in relation to frequently occurring and less severe types of trauma. The relevance of studies into such events, on the other hand, may not generalize back to the traumatic events for which PD was originally created. In studies where the traumatic events have been severe, self-selection for treatment has often been the only possibility. This means that treatment and control groups may not match on important measures, and indeed may not be comparable at all. Finally, the very idea of intervening with units of people well known to each other may run contrary to the principle of randomization.

Dyregrov (74) has argued that in this way there is a trade-off effect between the methodological quality and the 'ecological validity' of certain trials. This line of argument seems to be relevant, given that many of the methodologically soundest investigations find no/negative preventive effect using a form of treatment that diverges from the original descriptions of PD. On the other hand, it can be argued that these deviations merely reflect the current uncritical uses of the method. In that case, the results point to the need for a re-evaluation of the scope of application of PD.

The other main problem with prevention as evaluation criterion concerns the influence of other factors that may be just as salient as the treatment, and in this way make it difficult to find the isolated effect of PD. In the studies from the list above, several examples of such factors were found to correlate significantly with the degree of symptomatology found after critical incidents, including neuroticism (19), age (27), experience (28, 33), exposure level (16, 35, 43), threat to life (27, 28, 31), previous psychiatric/psychological problems (28, 31), being victim of intentional harm (42), gender (65), stress level during incident (33, 35),

perceived empathy from others (34), negative events in the year before incident (37), anger directed towards others (37) and alcohol/drug abuse (37).

In addition, it seems indisputable that circumstances aside from the intervention may have significant influence on the 'working through' of a traumatic incident. Factors such as additional psychological and pharmacological treatment as well as social support can make it very difficult to isolate the effect of the intervention in itself. This seems especially important in the field of traumatic stress studies, considering the fact that people affected by traumatic incidents are often very upset and may therefore be particularly likely to receive or seek out additional help during follow-up periods of investigations.

Besides the fact that all of these factors may be influential, PD is very limited in scope. After all, only one session of treatment is generally offered. In this perspective it seems strange that so little has been written about the realistic expectations to the method. All in all, it can appear overly optimistic to expect to find dramatic differences in symptom relief between treatment groups and controls in assessments that are often made many months or even years after a single session of debriefing.

This line of reasoning may seem plausible, and in favour of continued use of PD. On the other hand, it raises the question of why the creators of the method have maintained repeatedly that the main objective for undertaking PD is the preventive element. Consequently, if this aim of the intervention is to be upheld, the creators of the method will need to demonstrate how to establish this effect. The present use of longitudinal and randomized designs with the use of standardized measures of degree of symptoms has certainly not proved the point.

Perceived helpfulness as evaluation criterion—problems and limitations

Other problems arise when the alternative evaluation criteria for PD are used. The discussion concerning the preventive aspect has indicated that alternative ways of estimating effect of the treatment are relevant. Further, it seems appropriate to use other criteria for the many people who are being debriefed but were never expected to develop disorders in the first place.

However, there are a number of shortcomings in the existing literature on this subject. One major problem is the use of very general notions for establishing whether or not the alternative goals are attained. That people find the intervention helpful does not provide sophisticated understanding. Thus, it is not well established whether normalization of

reactions, verbalization and improved group support are indeed the result of debriefing.

Further, the few existing studies on the value of different aspects of PD do not prove the method to be particularly effective. It seems that participants find it more important to merely talk about the experiences than to get information about normal reactions to stress, etc., and this implies that the special format of PD may not be especially advantageous compared with other possible ways of intervening after traumatic incidents.

Finally, it is problematic that no relationship between the level of perceived helpfulness and objective measures of symptoms has been found. There is a complex relationship between these two factors and arguments can be found both for and against regarding either one as primary. It can be maintained, for example, that perceived satisfaction does not in itself prove that the treatment helps, as people may find satisfaction from doing things that are potentially harmful. In contrast, it can be argued that perceived helpfulness is a better measure of effectiveness, because the appraisal of symptoms is more important than the mere presence of given symptoms. This argument seems to be especially valid in cases where the level of symptoms is not severe enough to qualify for a diagnosis.

On this basis, it can be concluded that investigations using assessments related to more clearly defined intended effects of PD are needed, if it is to be established whether alternative goals to prevention are attained, and whether PD holds special advantages compared with other potential types of acute trauma intervention. However, as the creators of PD describe prevention as the main objective, they will have to revise this before other arguments for continued use are put forward.

Traditional PD vs. present use

The other main source of disagreement about the effectiveness of PD concerns the current non-specific uses. Indeed, since the present uses of PD reflect highly different practises, it can be argued that no firm conclusions can be drawn without considering this issue. Comparisons of studies adhering to and diverging from the original description of PD revealed that the effect obtained seems to depend on deviations from the traditionally defining features.

A possible explanation for the preventive effect found when the method is used with groups of professional helpers is that these represent a distinct group of people. Selection, training and experience, for instance, have been shown to serve a protective role in relation to traumatic stress (61, 75, 81–84). In addition, the members of these kinds of groups often

know each other well, and PD may therefore generate support beyond the meeting itself.

The trends found in relation to the defining features of PD are interesting. However, they should be interpreted with caution. There are typically deviations from a number of features at the same time, in any given investigation, and the specific combination of features must therefore not be ignored. It is also important to take the methodological deficiencies into consideration, and the fact that results are typically only weak indications. Bearing this in mind, the fact that deviations influence the results obtained is significant, and a strong argument for a return to the use of PD in accordance with the original defining features.

The fact that the features are not adhered to points to the need to specify the semantic content of the PD concept more precisely. In addition, the lack of preventive effect found from the present non-specific uses of PD indicates that there is a need for developing alternative ways of planning interventions, especially when sessions are on a one-to-one basis and with direct trauma victims.

Implications

The exact meaning of the PD concept needs to be clarified. The present confusion may lead to erroneous or even damaging use, and makes it hard to investigate the effectiveness of the method. It is recommended that the use of PD is restricted to its original area of application (i.e. groups of professionals), and in accordance with original descriptions, since a preventive effect has been found only when used in this way. No evidence has been found for the effectiveness of PD as individual treatment of direct victims. This might indicate that other ways of intervening with these groups need to be developed, possibly over more than one session, if prevention is the objective. Finally, the use of non-professional leadership could be problematic.

The use of different criteria of success is another source of confusion. No preventive effect was found from the present uses of PD. In contrast, people are generally very satisfied with PD. However, no study has found that specific characteristics of the method are responsible for this, and no connection has been observed between perceived helpfulness and degree of symptoms. Thus, while criteria of success other than prevention may be relevant, it is recommended that these are made explicit and tested in a more precise way.

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Appendix I. Category B and category C studies

Category B	Category C (list is not exhaustive)
Amir et al. (48)	Brom et al. (49)
Armstrong et al. (59)	Bryant et al. (56)
Burns & Harm (69)	Bunn & Clarke (54)
Busuttill et al. (85)	Doctor et al. (50)
Casswell QUOTE (60)	Foa et al. (55)
Cremniter et al. (57)	Foa et al. (90)
Deahl et al. (86)	Hodgkinson & Shepherd (91)
Dyregrov et al. (61)	Polak et al. (51)
Elklit (62)	Shuchter & Zisook (92)
Ersland et al. (87)	Solomon & Benbenishty (53)
Feldman & Bell (63)	Viney et al. (93)
Flannery & Penk (71)	Williams & Polak (52)
Hokanson & Wirth (64)	
Hutt (65)	
Larsson et al. (88)	A number of articles are frequently cited in the existing literature despite not being published/obtainable. These include: Griffiths & Watts (94). Study finding effect. Rogers (95). Investigation allegedly finding positive effect. Only abstract published. Scott & Jordan (96). Conference paper. Reports negative effect of PD. Western Management Consultants (97). Report finding positive economic effect. Not available to the public. Searle & Bisson (98). Conference paper reporting no effect of treatment
Leeman-Conley (72)	
Lundin & Bodegård (75)	
McFarlane (46)	
Callahan (47)	
Robinson & Mitchell (7)	
Robinson et al. (66)	
Smith & de Chesnay (67)	
Stratton et al. (89)	
Turner et al. (68)	
Vila et al. (58)	

Appendix II. Measures used

ADIS-R: Anxiety Disorders Interview Schedule—Revised.	LPSS: Langner Psychiatric Symptoms Scale.
BDI: Beck Depression Inventory.	LSS: Langsley's Symptom Scale.
BDS: Beck Depression Scale.	LWPS: Langsley's Work Problems Scale.
BIDI: Birlson Depression Inventory.	MHCQ: Maddison's Health Change Questionnaire.
BPAS: Bradburn's Positive Affect Scale.	MMPI: Minnesota Multiphasic Personality Inventory.
BSI: Brief Symptom Inventory.	NPI: Novaco Provocation Inventory.
CAPS: Clinician Administered Post-Traumatic Stress Scale.	PDEQ: Peritraumatic Dissociation Experiences Questionnaire.
CAPSTD: Clinician Administered Post Traumatic Stress Disorder.	PI: Penn Inventory.
CEV: Combat Evaluation Scale.	POC: Perceptions of Care.
CMI: Cornell Medical Index.	PSS: PTSD Symptom Scale.
CRQ: Coping Response Questionnaire.	PSS-F: Perceived Social Support-Friends.
CSC: Coping Scale of Carver et al. (1989).	R-CMAS: Revised Children's Manifest Anxiety Scale.
EPDS: Edinburgh Postnatal Depression Scale.	RMQ: Reactions to Miscarriage Questionnaire.
EPI: Eysenck Personality Inventory.	SAI: Standardized Assault Interview.
EPQ: Eysenck Personality Questionnaire.	SCL-90-R: Symptom Checklist 90 — Revised.
EXP: Combat Exposure Scale.	SELF-C: Self-Efficacy Questionnaire.
FRI-A: Frederick Reaction Index—Adult.	SEQ: Spielberger Self Evaluation Questionnaire.
FSSC: Fear Survey Schedule for Children.	SI-PTSD: Structured Interview for PTSD.
GHQ: General Health Questionnaire.	SRS-PTSD: Self-Rating Scale for PTSD.
GSI: General Severity Index.	SQ: Support Questionnaire.
HADS: Hospital Anxiety and Depression Scale.	STAI-state: State Anxiety Inventory.
HCST: Harvey's Conceptual Systems Test.	STAXI: State-Trait Anger Expression Inventory.
IES: Impact of Event Scale.	SUDS: Subjective Unit of Discomfort Scale.
ISEL: Interpersonal Support Evaluation List.	TNS: Traumatic Neurosis Symptoms.
ISS: Injury Severity Score.	TSI: Trauma Symptom Inventory.
LEAIQ: Late Effects Accidental Injury Questionnaire.	