

The Impact of Ongoing National Terror on the Community of Hospital Nurses in Israel

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Abstract The main goal of this study was to explore the connections between the exposure of nurses in Israel to national terror and the levels of distress experienced due to ongoing terror attacks. The data were collected from 214 nurses from various parts of Israel who work in three types of health services (mainly hospital departments) and provide help to victims of terror. The nurses reported very high levels of burnout, high levels of stress and medium-to high levels of intrusive memories. Levels of exposure were associated with burnout, intrusive memories and level of stress. More professional attention should be given to hospital nurses who provide care for trauma patients.

Keywords Nurses and nursing · National terror · Burnout · Stress · Resilience

Introduction

Living under ongoing national terror attacks has been part of Israelis' daily experience in recent years, especially between 2000 and 2004, a period known as the Second Intifada (the Palestinian Uprising) and, again between 2006 and 2008 (between the Second Lebanon War and the Cast Lead Operation). In cases of national terror attacks in Israel, most hospital nurses have unmediated contact with the victims, providing health services in three contexts: (1) Hospital trauma departments, (2) Hospital surgery rooms and, (3) Rehabilitation departments, either in hospitals, or other health- or community-related institutes. In all three

contexts, the nurses engage with the wounded victims and occasionally with their families within a few days of the injury.

Due to the frequency of national terror attacks, most hospitals and medical service providers are already organized to function in the event of a terror attack, and have developed operational procedures for such situations. Attention is also given to the impact of this task on the nurses.

The existing knowledge fails to address several issues such: what effect does the ongoing exposure to terror attacks have on the nurses who treat the victims? What is the effect on nurses who essentially share the same reality as that of their patients? Thus, the main goal of this study was to explore the connections between the ongoing exposure to national terror attacks and the related distress experienced by nurses treating terror attack victims.

The Impact of Terror

National terrorism is defined as an act or threat of violence against noncombatants, with the objective of exacting revenge, intimidating or otherwise influencing an audience. (Primoratz 1990; Stern 1999). This description highlights the two main characteristics that distinguish terrorism from other forms of violence: first, that it is aimed at noncombatants and thus it is different from fighting in a conventional war, and second, violence is used for dramatic purposes, usually to instill fear in the targeted population.

The definition of national terrorism is indicative of some of its effects on the targeted population: loss of life, injuries, and increased anxiety and fear. Studies conducted with the immediate victims of national terror attacks, i.e., survivors, witnesses and close relatives of those who were killed during terror attacks confirm that these individuals are at high risk of

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suffering distress, as a reaction to the traumatic event. The symptoms of distress include generalized fear and anxiety, repeated thoughts regarding the terror attack, depression and problems in daily functioning. In severe cases, such a distress reaction can result in varying severity levels of Post Traumatic Stress Disorder (PTSD).

One of the main predictors of such physical and psychological distress responses is the level of exposure to the terror attack. The term *level of exposure* refers to different kinds of exposure, ranging from being a direct victim injured in the attack, being within physical proximity of the event, or simply being exposed to the media coverage of the event. If we accept that a relationship with a victim of the attack constitutes a type of exposure, then it is reasonable to assume that the nurses who treat terror attack victims and occasionally intervene with victims' family members are also at high risk of experiencing some of the described symptoms, which in turn might lead to burnout (Maslach 1982; Shamai and Ron 2009) and/or secondary traumatic stress (Adams et al. 2001; Adams et al. 2008; Figley 1995a, b).

Burnout in Nursing Practice

Burnout is described as “a state of fatigue or frustration brought about by devotion to a cause, way of life, or relationship that fails to produce the expected rewards” (Freudenberger and Richelson 1980, p. 13). In general, burnout has been equated with alienation, depression, anxiety, loss of idealism, and loss of hope in response to stress (Maslach 1982; Soderfeldt et al. 1995). Nursing is considered a helping profession that entails a very high-risk of burnout, since it is very much a client-oriented profession, and nurses are involved in complex life-and-death situations (Aiken et al. 2002; Thilagavathi 2006). Among the nurses' work stressors, the authors indicated higher work load, poor social or institutional support, perception of high stress, role conflict, and helplessness.

The current study measured burnout at work in the specific context of providing care under the ongoing threat of terrorism.

Secondary Traumatic Stress

Secondary traumatic stress disorder (STSD) is a syndrome identical to PTSD (DSM-IV 1994), with the only difference between the two syndromes being the immediacy of the exposure to the traumatic experience. In PTSD, exposure is direct, whereas the exposure in STSD is indirect, and in the case of the current study, it is the effect of providing empathic care to the traumatized person (Figley 1995a, 1988). The studies conducted on the topic of secondary traumatization provide knowledge regarding specific variables related to the development of STSD, such as the worker's caseload, personal and professional

experience, and exclusive exposure to traumatized clients (Ghahramanlou and Brodbeck 2000; Hyman 2001; Lind 2000; Myers and Wee 2002; Shamai and Ron 2009). However, there is lack of knowledge regarding situations in which the trauma is not limited to one discrete event, but consists of a repeated experience lasting months or years.

In the literature, the impact of working with a traumatized population is often considered a function of both burnout and secondary traumatization (Butollo 1996; Kushnir and Melamed 1992; Searle and Andrews 2000, 2001). Adams et al. (2008) suggested the concept of Compassion Fatigue as a construct of both STSD and burnout. Regardless of the similarities and differences between the two concepts, both of them might have an impact on the personal level of stress and therefore on the worker's general and mental health (Adams et al. 2008; Pearlin and MacLan 1995). The present study focused on a major symptom of STSD, the intrusive memories.

Coping with the Threat of National Terror

Coping variables are often related to personal and social resources upon which the individual draws when coping with stress. Among these variables are hardiness (Kobasa 1982), sense of coherence (Antonovski 1987), social support (Kessler et al. 1991), and It also considered components of resilience.

The current study uses the *sense of coherence* concept (Antonovski 1987, 1991—The Salutogenic Approach) to explore personal resilience, which can be part of the coping process. This concept was first developed and validated in Israel and with consideration to the Israeli population, and is therefore appropriate for the current study; b) this concept explores human behavior in terms of health rather than illness, known as the salutogenic approach (Antonovski 1991).

As a social resource, social support was found to have a moderating effect on stress in general (Kessler et al. 1991; Thoits 1995), burnout (Carney et al. 1993; Leiter and Harvie 1996; Ross, Altmaier and Russel 1989) and secondary traumatization (Follette et al. 1994; Munroe 1991). Social support can be either a general support that is given to any person by significant others; or more specific support that is given to nurses regarding their specific activities and comes from supervisors and peers at the workplace and/or from significant others outside the work place.

Research Questions

Based on the existing knowledge, the current study investigated the following research questions: (1) What is the contribution of exposure variables (personal and professional/direct and indirect) and protective variables

(resilience, social support, professional experience, relevant training and support for professional activities) to burnout, intrusive memories and levels of stress among the hospital nurses? (2) What is the contribution of each of the professional distress variables (burnout and intrusive memories) on the level of personal distress of hospital nurses in Israel?

Method

Sample and Sampling

The sample included 214 nurses from all over Israel, employed mainly in hospital departments that provide emergency health services. In all of Israel, there are about 970 Emergency Room (ER) nurses: while not all participants were ER nurses, the number of participants in this sample is equivalent to approximately 20 % of this population. We randomly chose hospital departments from all over the country, from areas both with and without a history of terror incidents. This process yielded 5 hospital trauma departments, 6 hospital surgery rooms and, 9 rehabilitation departments. We directly contacted each one of the directors of the services sampled, explained the goal of the study, and asked for their cooperation in distributing the questionnaires to their staff. Most of the directors agreed to inform their staff about the study and to forward the questionnaires. The questionnaires were sent by mail to each of the hospital departments and were mailed back to us, as a means of collection. Of the total 600 questionnaires that were sent out, 336 (about 56 %) questionnaires were returned. About third questionnaires (122) were not included in the final sample due to missing data. The study population included 214 participants: From the hospitals' trauma departments 86 nurses were sampled (40 %), 63 nurses were sampled from the surgery departments (29 %) and, 65 were sampled from the rehabilitation departments (31 %). As for the gender variable, 134 of the participants were women (63 %), most of them were married (72 %), and the majority had children (about 75 %). The average age was 42.2 (SD = 3.74) and average years of seniority at work was 16.1 (SD = 3.92). The study was conducted according to the rules of the University of Haifa Ethics Committee.

Instruments

Independent Variable

Personal exposure to national terror attacks: Two levels of personal exposure were calculated, based on the participant's direct or indirect exposure to terror attacks. A participant who was or was not injured at or witnessed a terror

attack was rated dichotomous at level 1 for "yes" or 0 level of exposure for "no". The variable was measured using four questions: for example: "Did you get hurt during a terror attack?"(1); "Did you witness a terror attack, but luckily you were not injured?"(2); "Did one of your family members (3)/your close friends (4) get hurt during a terror attack?".

Professional exposure to national terror attacks at work was measured by the question: "Have you professionally intervened with terror victims or their family members?" Participants who did not have any previous professional contact with terror victims and their families were given a score of 0, and those who did have such contacts were given a score of 1. Both the personal exposure variable and the professional exposure variable were combined into one variable based on the five questions and named: Exposure to ongoing threat of terror.

Personal resilience was measured using the Sense of Coherence Scale (SOC; Antonovski 1987, 1993). The short version of the scale includes 13 semantic differential items rated on a seven-point scale (1–7) (Antonovsky 1993). The internal reliability was obtained by Cronbach's alpha coefficient, with high values ranging between .84 and .93. In the present study, the Cronbach alpha was .84.

Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al. 1988). The scale consists of 12 items that are rated on a seven-point Likert scale (1–7). Internal reliability, established by using the Cronbach's alpha coefficient for the scale, was .88. In the present study, the Cronbach's alpha was .91.

Professional experience was measured by the number of years of seniority in the nursing profession.

Relevant training: participants were asked to rate the adequacy of specific terror-related training they had received within their work place on a five-point Likert scale (1–5).

Support for professional activities with victims of terror: The scale consisted of five items that were rated on five-point Likert scale (1–5). The items used to measure the perceptions of the participants regarding the support they received from colleagues, directors and supervisors, family, friends, and Israeli society for professional activities with victims of terror. The scale was developed for a study similar to the current study with one difference: the participants were social workers (Ron and Shamai 2011; Shamai and Ron 2009). The original Cronbach's alpha was .79 and the Cronbach's alpha for the current study was .83.

Dependent Variables

Burnout was measured by the Maslach Burnout Inventory, (MBI; Maslach and Jackson 1981, 1986). The inventory

includes 25 items rated on a seven-point Likert scale (0–6) that are divided into three subscales: emotional exhaustion, depersonalization and personal accomplishment. The internal reliability for the translated inventory as estimated by Cronbach’s alpha coefficient was .80 for the entire scale. In the current study, the Cronbach alpha was .83. Due to the high alpha Cronbach of the entire scale, we used the mean and SD. of the entire scale for the statistical analysis.

Intrusive Memories: we had originally intended to measure secondary traumatization. However, the instruments that measured level of stress (BSI) and burnout (MBI) have issues that overlap those presented in the Compassion Fatigue Self Test (Figley 1995b); therefore, we decided to add one question directed specifically to one of the main symptoms that characterizes STSD and focuses on flashbacks and intrusive memories: “The work with terror victims never ends. The memories, the voices and/or the visions about which the client talked keep running in my head, when I am awake and/or in my dreams.” Responses were rated on a five-point Likert scale, ranging from *never* (1) to *very frequently* (5). We will refer to this variable as *Intrusive Memories*.

Level of personal stress: was measured by the Brief Symptom Inventory (BSI) (Derogatis and Spencer 1982). This self-report instrument consists of 53 items measuring nine symptom sub-scales, with each item rated on a five-point Likert scale (0–4). In the current study, only three sub-scales were used: anxiety, depression, and somatization. Both the validity and the reliability of the inventory were established in various studies, including studies that utilized the translated (Hebrew) version (Derogatis 1994; Derogatis and Savitz 1999; Gilbar and Ben-Zur 2002). In the current study, the alpha Chronbach was .90 for the entire scale. Due to the high alpha Cronbach of the entire scale, we used the mean and SD. of the entire scale for the statistical analysis.

Results

The means and standard deviations of the findings for each of the research variables. The results are presented in Table 1.

As the data indicate, a high level of resilience was found among the participants (5.72), a very high levels of exposure to terror (about 90 %), rated the adequacy of specific terror-related training with a mean score of 4.22 and the support for professional activities with victims of terror was 4.11. The participants reported a high level of burnout (3.92), a medium level of intrusive memories 3.13, and medium –high level of personal stress (2.01).

To assess whether the exposure variables contribute to professional and personal distress, Pearson correlations tests were conducted between the research variables (Table 2).

The table shows that our assessment about the associations between the study variables was found completely.

To answer the research question regarding the contribution of burnout and intrusive memories resulting from

Table 1 M and SD of the study’s variables (N = 214)

Variable	M	SD
Exposure to ongoing threat of terror (0–1)	.89	.36
Years of seniority	12.60	3.10
Support for professional activities with victims of terror (1–5)	4.11	1.00
Relevant training (1–5)	4.22	.63
Resilience (SOC) (1–7)	5.72	.88
Social support (MSPSS) (1–7)	5.34	1.04
Burnout (MBI) (1–7)	3.92	.44
Intrusive memories (1–5)	3.13	.78
Personal stress (BSI) (0–4)	2.01	.90

Table 2 Matrix of Pearson correlations between the research variables

Variables	1	2	3	4	5	6	7	8	9
1. Exposure	1	.34*	-.12	.50***	.33	-.17*	.34*	.08*	.32***
2. Years of seniority		1	.37***	.27***	-.19**	.46***	-.12**	.27**	-.12*
3. Support for professional activities			1	.17***	.16*	.41***	-.26**	.52***	.17*
4. Relevant training				1	.22**	.37***	.17***	.24	-.53**
5. Social support					1	.26**	-.18***	-.11	-.17***
6. Resilience						1	-.36***	.14	.52***
7. Burnout							1	.11	.50***
8. Intrusive memories								1	.42***
9. Personal stress									1

* $p < .05$, ** $p < .01$, *** $p < .001$

the ongoing work with victims of terror on the personal distress of nurses, we utilized three models of two-step hierarchical regressions. In step one, all the independent variables were entered into the regression equation in all the three models. Step two was different for each of the models: in the first model burnout was entered into the regression equation, in the second model intrusive memories was entered into the equation, and in the third model burnout and intrusive memories were entered into the regression equation. Table 3 presents the results.

As shown in Table 3, all three models rendered statistically significant findings.

The burnout variable added about 38 % to the explained variance of the personal level of stress; the intrusive memories variable added about 19 % and when both of them were entered burnout added about 34 % and intrusive memories about 12 %.

Discussion

The study results show that the nurses reported medium–high levels of personal stress, high levels of burnout, and medium levels of intrusive memories in a context of

Table 3 Two steps hierarchical regression of personal and professional variables

Variables	Step 1			Step 1		
	B	SE	β	B	SE	β
Professional exposure	.037	.014	.124**	.032	.015	.103*
Years of seniority	.053	.031	.088	.051	.032	.097
Support for professional activities	.066	.043	.093*	.073	.042	.104*
Relevant training	−.029	.088	−.135*	−.033	.094	−.138*
Personal exposure	.055	.026	.072	.049	.033	.066
Social support	−.063	.034	−.065	−.067	.029	−.062
Resilience	−.197	.092	−.236***	−.188	.095	−.276***
Burnout				.204	.036	.376***
F change				33.619***		
R ₂	.267			.399		
R ₂ change				.132		
Professional exposure	.037	.014	.124**	.124	.092	.110**
Years of seniority	.053	.031	.088	.050	.027	.100
Support for professional activities	.066	.043	.093*	.063	.040	.094
Relevant training	−.029	.088	−.135*	−.033	.084	−.120*
Personal exposure	.055	.026	.072	.061	.038	.077
Social support	−.063	.034	−.065	.062	.030	.063
Resilience	−.197	.092	−.236***	−.221	.089	−.253***
Intrusive memories				.099	.023	.186***
F change				20.232***		
R ₂	.267			.312		
R ₂ change				.045		
Professional exposure	.037	.014	.124**	.024	.034	.089**
Years of seniority	.053	.031	.088	.031	.012	.106
Support for professional Activities	.066	.043	.093*	.071	.038	.094*
Relevant training	−.029	.088	−.135*	−.038	.073	−.107*
Personal exposure	.055	.026	.072	.048	.027	.080
Social support	−.063	.034	−.065	−.026	.039	.075
Resilience	−.197	.092	−.236***	−.144	.074	−.283***
Burnout				.254	.045	.341***
Intrusive memories				.087	.022	.122***
F change				23.226***		
R ₂	.267			.444		
R ₂ change				.177		

* $p < .05$, ** $p < .01$, *** $p < .001$

exposure (personal and professional) to an ongoing threat of terror attacks. Our results are somewhat similar to those of other studies, which claimed that working with traumatized clients often increases the level of personal stress, manifested by symptoms of STSD, PTSD, and/or burnout (Arvay 2001; Freudenberger, and Richelson 1980; Grieger et al. 2003; Hyman 2001; Lind 2000). Some of these studies researched nurses and other staff members in general hospital personnel, in Israel (Ben-Ezra et al. 2007; Essar et al. 2008), in Bosnia and Herzegovina (Hodgetts et al. 2003) and in the U. S (Essar et al. 2008). For example, one study emphasized the higher levels of stress among the nursing profession in comparison to social workers (both considered feminine professions) (Dekel et al. 2007). The researcher found that the social workers reported lower levels of psychological distress on all measures except anxiety, compared with the hospital nurses' reports, as well as a medium mean level of STSD (Luce et al. 2002). Riba and Reches's (2002) found that intensity of caring for traumatically injured patients may contribute to the treatment team's own stress and burnout. The researchers tried to understand the experience of nurses caring for victims of trauma. Nurses described fears about not being able to perform their job or function properly, feelings of frustration and guilt, especially if their patient died. Nurses also experienced restlessness, sleeplessness, nightmares and intrusive memories following the care of trauma patients. Similar findings of anxiety, burnout and STSD among hospital nurses were reported in other studies (Collins 2001; Laposa and Alden 2003).

It is a common knowledge that nurses, especially those working in trauma centers and emergency rooms, often report suffering from burnout. Our study findings show high levels of burnout and stress reported by the participants.

The high levels of burnout reported by the research participants can be a jobrelated burnout as well a result of on-going traumatic events. Our inability to refer only to the second reason is one of the limitations of the study. However, the literature presents a range of studies, which emphasize the fact that the nursing of disaster victims involves a systematic application of knowledge and skills specific to disaster situations, as well as the implementation of activities that minimize health hazards and life threatening damage, and is accompanied by burnout symptoms caused by distress (Gebbie and Qureshi 2002; Veenema 2003).

Another interesting finding of the current study was the high level of resilience reported by the participants (mean of 5.72 in a 0–7 point scale). This high degree can also be explained as an effect of the specific training the nurses received, although high resiliency is characteristic of Israeli society in general and of its manner of coping with

the high rate of terror attacks during the Second Intifada, in particular (Lavee 2004; Tuval-Mashiach and Shalev 2005). The nurses are an integral part of Israeli society and, as such, their resilience can be attributed not only to personal and professional variables, but also to social variables—being part of a resilient society. Israel is very small in size, and its population is a very tightly-knit society; therefore, the news of a national terrorist attack travels at the speed of sound (assisted also by the media) and affects everyone, whether directly or indirectly. The immediacy and the intensity of the exposure create an atmosphere of angst that engulfs the entire Israeli population, so that virtually no one remains detached.

Another possible explanation is related to the effect of the time lapse between the most recent terror attacks in which the nurses intervened and the time of filling out the questionnaires. It may be that during the time lapse, the nurses—like most of the Israeli population—had already developed a functional defense mechanism of denial, which allowed them to continue their regular daily activities after a terrorist attack (Georgi 2002; Ron and Shamai 2011; Shamai and Ron 2009). This possibility was expanded upon by some of the participants, who mentioned that they would have felt unable to fill out the questionnaire had it been presented to them immediately or shortly after a terrorist attack. Thus, one might wonder whether the findings of this study would not have been different if the data had been collected closer to the actual event.

It is possible to claim that the high level of personal resilience, the specific support for professional activities with terror victims and the relevant training all counterbalance the negative effects of the exposure to the stressor of working with war and terror victims (Jayaratne and Chess 1984; Ross et al. 1989; Soderfeldt et al. 1995). However, the results showed that the only coping variable that contributed to personal and professional distress was personal resilience, while social support in general was found to have no association with burnout, intrusive memories or personal level of stress, as in Adams et al. (2008). The specific support for professional activities with victims of terror was associated with intrusive memories and with personal level of stress; however, the positive direction of these associations, which was unexpected, needs an explanation. Perhaps this could be explained by assuming that the nurses who experienced such intrusive memories were those who in fact sought more support for their activities and, fortunately, received the support they needed. Support and recognition provide feedback to the nurses, acknowledging their activities with victims of terror and the painful feelings and thoughts that might arise in the aftermath. Providing such support is one of the basic elements in the treatment of caregivers who help traumatic clients (Valent 2002). Furthermore, the nurses were

informed during their training about the importance of recognition and it was possible to ask for and receive such support from colleagues, supervisors and directors. In many cases, also family members and friends of the victims and their families expressed their appreciation of the nurses' interactions with victims. Another possible explanation is that the specific terror-relevant training –when indeed offered to the nurses– was insufficient, and did not correspond to their real, on-the-job needs. It is also possible that although such relevant training was offered, many of the nurses chose, for various reasons, not to participate. Often in this type of context oriented training, nurses seek answers to very specific issues and questions that they have encountered in their daily work; as these questions remain unanswered, the nurses opt to drop out of the training, reporting their dissatisfaction and that the training had no effect on their mental wellbeing. Although there are no reports available from nurses who care for terror victims, there are such reports from teams that work with suicidal populations, which not unlike the nurses of terror victims, work to provide emergency treatment to multiple victims (Jordan 2001; Provini et al. 2000).

Another finding that calls for explanation is the lack of association between resilience and intrusive memories. It is important to note that similarly, Adams et al. (2008) did not find any association between sense of mastery and secondary associations. Although the variables in that study are not identical to those of the current study, they measured somewhat similar phenomena. Based on the latter study, the current study and a qualitative study that explored the experience of social workers in situations of on-going terror (Ron and Shamai 2011; Shamai and Ron 2009), it seems that there is a need for further investigation in order to increase our understanding of the phenomena of intrusive memories and secondary traumatization. According to the authors findings (Ron and Shamai 2011; Shamai and Ron 2009), the social workers experienced high levels of intrusive memories during the first three or four days after the terror attack, and then the intrusive memories subsided, as they apparently do with the majority of the Israeli population. However, in the quantitative results, the social workers reported medium levels of intrusive memories even a few months after their last intervention with victims of terror. We wonder whether the nurses perceive some of the symptoms of secondary traumatic stress as signs of their being empathic and committed to their clients rather than as symptoms of a pathological condition.

Limitations and Suggestions

The limitations of this study relate to the mainly to the time lapse between the last terror-related intervention and the date of filling out the questionnaire and the question of

sensitivity of the measurement instruments to identify small differences among somewhat homogeneous groups. It is suggested that the specific training that nurses receive regarding intervention with terror victims should be continued and include aspects regarding personal topics of concern. In addition, directors and supervisors should be trained in providing special support to the nurses during and after the intervention with the victims and they too should be acknowledged for providing this support.

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