


Psychological first aid training in disaster preparedness for nurses working with emergencies and traumas

Nizar B. Said PhD, MSN, BSN, RN¹  | Alex Molassiotis PhD, MSc, BSc, RGN, RN² |
Vico C.L. Chiang PhD, MHA, GDipMgtSt, BN, RN, FHKAN²

¹ Department of Nursing and Midwifery, Faculty of Medicine and Health Sciences, An Najah National University, Nablus, Palestine

² School of Nursing, The Hong Kong Polytechnic University, Kowloon, Hong Kong

Correspondence

Prof. Alex Molassiotis, School of Nursing, The Hong Kong Polytechnic University, Kowloon, Hong Kong.

Email: alex.molassiotis@polyu.edu.hk

Abstract

Aim: This study aimed at evaluating the effects of a modified psychological first aid (PFA) training program on nurses' psychological preparedness for emergencies and disasters.

Background: Nurses need to be psychologically prepared in order to mitigate the impact of conflicts and disasters. The PFA training could ensure their psychological preparedness in responding to different emergencies and disasters.

Design: A nonequivalent controlled group trial was conducted between July 2019 and August 2019.

Methods: Nurses working in the trauma units from five hospitals in Palestine were allocated into two arms: a control arm and an intervention arm incorporating a 9-hour modified PFA training program. Both groups were assessed at start (pretest) and upon completion of the program (post test) using a number of validated self-reports.

Results: Eighty-four nurses were allocated to each arm, and 75 in each arm completed baseline data ($n = 150$). The results of generalized estimating equation estimates revealed that PFA training imposed a significant group-by-time effect on psychological preparedness ($p = 0.013$). The mean scores of psychological preparedness showed greater improvement in the intervention group than in the control group at posttest (37.81 vs. 32.64). Improved group-by-time effect was further identified in relation to optimism ($p = 0.009$), self-esteem ($p = 0.008$), and self-efficacy ($p = 0.033$). The intervention effect was large (Cohen $d = 1.41$).

Conclusion: PFA training may help to build nurses' capacity in being better prepared to respond to psychological issues during and after emergencies and disasters.

Implications for Nursing and Health Policy: Nurses should be adequately equipped with knowledge and skills to deal with different emergencies and disasters. Health policy needs to address psychological preparedness for emergencies and disasters of all healthcare workers. Healthcare policymakers and educators could adopt PFA training on a regular basis to consolidate psychological preparedness of nurses.

KEYWORDS

disasters, knowledge, nurses, optimism, psychological first aid, psychological preparedness, PTSD, self-efficacy, self-esteem

INTRODUCTION

Nurses working in areas of emergency are at risk of different threats and crises and need to deal with difficult contexts such as conflicts, disasters, disease outbreaks and pandemics (Barten et al., 2021). They need to have different competencies to provide the necessary care for those who are brought to

emergency departments. These competencies could include the management of patients with multiple traumas, stabilization and transfer of serious traumatic cases (Hassankhani et al., 2018). Mass trauma can occur due to natural or human-caused disasters; these events exert high demands on first responders, disaster relief agencies, and survivors to make adjustments, such as to develop an awareness of their current



coping strategies (SAMHSA, 2014). Hospitals also have an important role to play in responding to emergency conditions that require immediate and extensive resources (Mojtahedi et al., 2021). Nurses working in these hospitals should have the capacity to better respond to people who require hospitalization after a visit to the emergency department following traumatic events (Al Harthi et al., 2020). Physical and psychological preparedness may enable nurses to provide the appropriate kind of support for victims and even for themselves (Said & Chiang, 2020). For instance, nurses have emphasized the need for psychological health support each time a nurse is deployed to deal with a disaster (Von Strauss et al., 2017).

In the Palestinian context, the regular mass casualties and challenges presented by the ongoing conflicts in the region, and the systematic destruction that takes place during military operations, particularly in the Gaza Strip, mean that nurses must be prepared to deal with a large number of people who experience traumas and to contribute to post-disaster reconstruction efforts (Enshassi et al., 2017). Half of the Palestinian population relies on humanitarian aid. In one recent example, a 10-day Israeli military operation in Gaza (May 2021) during which 3450 rockets were fired resulted in the destruction of 450 buildings and left 215 people dead, over 1400 injured, and over 52 000 displaced. Such regular violent conflicts create disaster situations that nurses need to help manage, both in the acute and in the post-acute recovery phase (Reuters news, 2021). The damage inflicted from conflicts is not only physical or material, but psychosocial as well, and can have a long-term impact. Efforts are needed to increase the attention paid to mental health, psychological issues and to psychological resilience. While all communities experience similar emotions in the aftermath of emergencies and disasters, the priorities in psychological needs and how these are met may differ (Kılıç & Şimşek, 2019). What is a common reaction to pain or any condition in one culture may be uncommon in another. In Palestinian culture, social cohesion, family support, and community support are highly valued for people who remain in solidarity with one another in extreme and difficult conditions. While nurses provide social support, it is expected that people will also receive care from their family, friends, and peers, which could contribute to a decrease in posttraumatic stress disorder (PTSD) and have a positive impact on psychological well-being (Sato et al., 2018).

Attention to capacities and skills in the psychological preparedness of nurses is therefore needed. Results from an international survey of responders to traumas and disasters indicate that just under half of nurses were psychologically prepared; and that general disaster preparedness was significantly more common than psychological preparedness, with such training often being self-directed and informal (Said et al., 2020). This highlights the need for training in psychological preparedness with the purpose of strengthening the response of nurses to traumas, emergencies, and disasters. The training should also include the psychosocial and mental health aspects of the nurses, themselves, who assist in emergencies and disasters (Agarwal et al., 2020; Labrague et al.,

2017). Nurses are expected to have essential skills in emergency and disaster preparedness in order to confront difficult psychological situations (Brooks et al., 2018; Sijbrandij et al., 2020).

As it has been established that high self-efficacy, self-esteem, and dispositional optimism are linked to high psychological preparedness, and that high PTSD and trait anxiety are linked to low psychological preparedness, it is important to incorporate those variables as part of the content of any such training (Said et al., 2020). Self-efficacy is an attribute of psychological preparedness, which has also been highlighted in previous studies (Gandhi et al., 2021; Kılıç & Şimşek, 2019). The literature further reports that the presence of PTSD could negatively influence the preparedness of nurses for future disasters (James et al., 2020; Welton-Mitchell et al., 2018), possibly leading to increased mental health problems. Studies have also shown that preparedness and resilience during disasters are significantly affected by personality (Malkina-Pykh & Pykh, 2013). It may be that building and enhancing dispositional optimism, self-efficacy, and self-esteem and reducing trait anxiety and PTSD can also enhance the psychological preparedness of nurses.

Psychological first aid (PFA) is an early mental health intervention that can mitigate the effect of disasters and traumas (Choi, 2020; Findley et al., 2016; Kılıç & Şimşek, 2018; Shah et al., 2020). It may be applied to empower the public and responders to promote psychological health and prevent declines in related outcomes for disaster mitigation (Wang et al., 2021). PFA is fundamental to helping patients recuperate psychologically from distressing encounters like conflicts and disasters (Shah et al., 2020). It improves the adaptation of survivors from disaster through different means, including calming and emotionally supporting them, consequently reducing mental health problems and the arousal of emotions that contribute to PTSD (Dong & Bouey, 2020). PFA can further help patients in attaining skills to reduce anxiety and distress (Fox et al., 2012; Guterman, 2005). Furthermore, PFA is recommended for reducing the psychological consequences of traumatic events, reducing physiological arousal, and developing adaptive coping strategies (Corey et al., 2021). In one study, PFA trainees had more confidence and knowledge to assess and mitigate immediate stress after disasters (Everly et al., 2012). Past work has provided evidence that PFA exerts a positive impact on professionals engaged in disaster preparedness (Schafer et al., 2016; Wang et al., 2021). It has also been found that different capacities improved after PFA training, such as the acquisition of knowledge and more insights related to disaster, mental health, self-care in times of disaster, self-efficacy in providing PFA, and attitudes toward and a willingness to provide PFA (Everly et al., 2014). Education on mental health and psychosocial support, including PFA, could help to prepare healthcare providers, particularly nurses, to respond more effectively to the psychosocial needs of those affected from the emotional impact of disasters (Langan et al., 2017).

This study adopted a modified framework based on a model put forward by Malkina-Pykh and Pykh (2013, 2015) to assess psychological preparedness and personality variables after the



PFA training, which included self-efficacy, self-esteem, dispositional optimism, and trait anxiety. As disaster responders are potential victims to adverse psychological effects, specifically PTSD, the latter supplemented the study framework. Hence, the aim of this study was to evaluate the effects of face-to-face RAPID-PFA (reflective listening, assessment, prioritization, intervention, and disposition) (Everly et al., 2014; Everly and Lating, 2017), which is used to improve the capacities and skills of nurses in psychological preparedness and to evaluate their self-efficacy, dispositional optimism, self-esteem, PTSD, and trait anxiety after PFA training in comparison with a control group.

METHODS

Design

A nonequivalent pre- posttest group design was used. It included two study arms: the (wait-listed) control group and the intervention group receiving the modified face-to-face RAPID-PFA program with simulation and role-playing. The study complied with the TREND checklist for nonrandomized designs (Jarlais et al., 2004).

Sampling and setting

Due to a lack of studies that have investigated a similar primary outcome (psychological preparedness) with a similar design, a medium effect size with Cohen's $d = 0.5$ was assumed. Accordingly, with the power at 0.8, a medium effect size and a significance level (α) of 0.05, 64 nurses were required for each arm. Assuming a 30% attrition rate, a total of 168 nurses were required to participate (84 nurses for each arm). The study included five hospitals in the cities of Nablus and Ramallah in the West Bank of Palestine. The inclusion criteria were nurses working full time in departments dealing with trauma patients (intensive care units, emergency departments, and surgical departments). Nurses with working experience of less than one year were excluded.

Recruitment of participants

Simple randomization was carried out by drawing two of five hospitals to be the intervention arm and the other three to form the control arm. To avoid contamination, nurses were allocated to either the intervention group or the control group by individual hospitals. An invitation to nurses working in trauma departments of the participating hospitals was extended, using convenience sampling. Participating nurses received information explaining the study and its aims, and the measures that would be taken to ensure safety, confidentiality, and anonymity. They were also assured that they could withdraw from this study if they wished, such as if they felt

any discomfort when filling in any part of the set of questionnaires. Written consent was obtained from the participating nurses.

Data collection

Data collection was carried out at two time points. Nurses in the interventional group completed the pretest (T_0) before the first training session, and the posttest immediately after completing the last training day of the five-week training program (T_1), to evaluate the immediate effect of the PFA training. Nurses in the control group completed questionnaires at pretest (T_0) and were provided with the questionnaires for the posttest (T_1) at the same time as those in the PFA group. The flow of the enrollment and allocation for the two arms is illustrated in Figure 1.

Intervention

The training program was modified from the RAPID-PFA, which had been developed by the Johns Hopkins Center for Public Health Preparedness (Everly et al., 2014; Everly and Lating, 2017). The original RAPID-PFA has two versions that are fully online, and a 6-hour in-person training workshop, consisting of lectures and simulated role-play videos for trainees to watch. The RAPID-PFA used in this study was modified based on the one used for in-person training. The modified program was nine hours long and was delivered weekly in two-hour sessions (the last session was one-hour long) over five weeks. The sessions included interactive didactic lectures, group discussions, and the addition of simulated role-play exercises based on disaster scenarios relevant to the Palestinian situation. Furthermore, the principles of connectedness and social support, as well as faith, were highlighted and included in this training, as these may have a positive impact on one's psychological condition in the cultural context of the study. The modifications incorporated scenarios that describe Palestinian situations, in addition to cultural issues, faith, norms, and values. The core competencies of the modified and adopted RAPID-PFA training program incorporated the five essential elements of an immediate intervention in a situation of mass trauma (*safety, calming, self- and collective efficacy, connectedness, and hope*), as discussed by Hobfoll et al. (2007). Permission was obtained from the author of the original program to adopt and modify the program.

The PFA trainer was a licensed psychologist from Médecins Sans Frontières/Doctors Without Borders (MSF), with extensive experience as an emergency and trauma responder. The trainer attended the online version of RAPID-PFA to understand the program. Furthermore, the trainer was not involved in the data collection process.

The training provided nurses who had received no prior formal education in disaster/emergency mental health with the opportunity to acquire the concepts and skills associated with PFA. Face-to-face training was chosen as the preferred

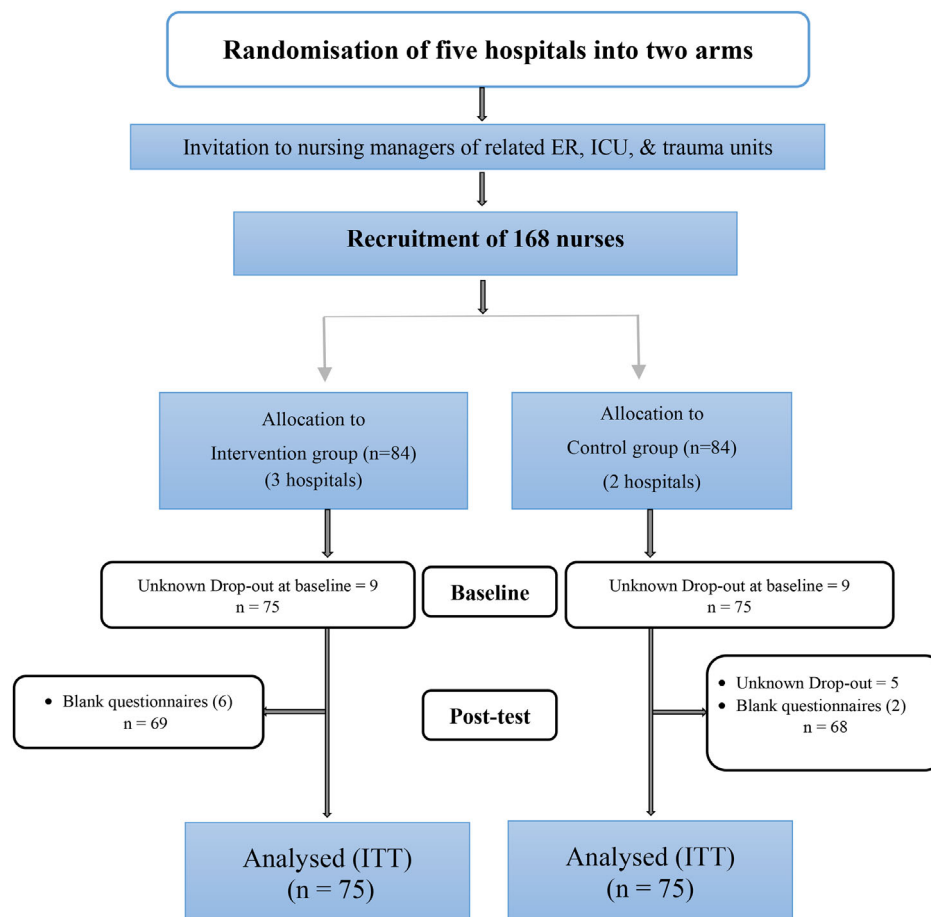


FIGURE 1 Flow diagram for enrollment and allocation of study participants

mode of delivery because (1) nurses could obtain a more in-depth understanding of PFA concepts, (2) the presence of scenario-based simulation would facilitate a greater understanding of the victims' situations and nurses' roles, and (3) questions and answers could be more immediately and productively dealt with in a group and with a debriefing following the simulation.

Instruments

The evaluation included a set of questionnaires that contained four sections and required approximately 15–20 minutes to complete. The *first section* covered the demographic characteristics of the participants, such as their sex, age, education, marital status, workplace and specialty, current position, nursing experience, and weekly work hours. For the *second part*, a self-reported survey used by Everly et al. (2014) on knowledge, skills, and attitudes toward PFA was included. The *third part* contained the General Self-Efficacy Scale (GSE) (Schwarzer and Jerusalem, 1995), the Self-Esteem Scale (SES) (Rosenberg, 1965), the Life Orientation Test (LOT) (Scheier et al., 1994), the State-Trait Anxiety Inventory (Spielberger et al., 1983), and the PTSD Diagnostic Scale for DSM-5 (PDS-5) (Foa et al., 2015). The last part included the Psychological

Preparedness for Disaster Threat Scale (PPDTS) (Zulch et al., 2012) (see Supplementary Table 1). Permission to use all of the scales was obtained as required. Data were collected through the above questionnaires using the original English language versions.

Ethical considerations

Ethical approval was obtained from the Ethics Committee of the Hong Kong Polytechnic University (ref. no. HSEARS20190118001) and from An Najah National University (ref. no. April12/2019) before the commencement of the study. Nurses were fully informed about the study and were also provided with an information sheet. Participating nurses provided written consent. The completed questionnaires were returned in sealed envelopes and kept in a locked cabinet in a confidential facility at Najah University, which could be accessed only by the researchers involved in the study. Confidentiality and anonymity were ensured as the nurses' responses were represented using numbers rather than names. Appropriate measures were in place if necessary, such as a further assessment from a psychologist outside of the research team, to deal with participants who might exhibit distress or adverse effects during training.



Data analysis

The SPSS, version 25 (IBM, 2017), was used for the analyses. Descriptive statistics were used to present the characteristics of the participants. The normality distribution of the PPDTS was evaluated before a decision was made on the appropriate test to be used. The alpha was set at the level of $p < 0.05$. Chi-square and Mann–Whitney U tests were used to determine whether there were any significant group differences in the characteristics of the participants and in the included outcome variables between the control and experimental groups at baseline. In order to apply the intention-to-treat (ITT) principle, multiple imputations were performed using the fully conditional specification method with eight imputations substituted for missing values generated for analysis. To determine whether there were any changes in outcome variables between the control and experimental groups across the baseline and posttest study period (i.e., a group-by-time interaction effect), a generalized estimating equations (GEE) model was used. A sensitivity analysis was conducted to compare the results between the ITT and per protocol (PP) analysis. A Mann–Whitney U test was also used to compare these scores at different time points between the groups. Estimates related to effect size were calculated based on Cohen's d (1992). Since the nurses in the Palestinian region were working in the same context and might be exposed to conflicts on a daily basis, we did not expect any significant confounders that could affect the outcomes.

RESULTS

Characteristics of the participants

A summary of the characteristics of the participants ($n = 150$; 75 nurses for each group) is shown in Table 1. No significant between-group differences were seen in gender, age, marital status, and work experience. The majority of participants had a bachelor's degree (57.3% and 61.3% in the respective groups), with few nurses having received disaster training (4% in each group). Significant differences between the experimental and control groups were seen only with workplace ($p < 0.001$). A comparison of outcome variables was also made between the groups at baseline. Significant differences ($p < 0.05$) were found between the two groups in attitudes, skills, knowledge, T-anxiety, and PTSD ($p < 0.05$) (Supplementary Table 2).

Primary outcome: PPDTS

The GEE estimates of the adjusted mean and standard error (SE) of psychological preparedness (PPDTS) for the two study periods among the experimental and control groups were 37.81 (SE = 0.86; 95% CI, 36.12–39.49) and 32.64 (SE = 0.95; 95% CI, 30.77–34.51), respectively. The PPDTS did not differ

significantly between the groups ($B = -3$; 95% CI, -8.66 to 2.66 , $p = 0.298$), and the time effect between the groups was not significantly different ($B = .01$; 95% CI, -0.56 to -0.58 , $p = 0.968$). However, the group-by-time effect in PPDTS between the control and experimental groups across the baseline and posttest was significantly different ($B = 4.9$; 95% CI, 1.16 – 9.74 , $p = 0.013$) (Table 2, adjusted model using ITT). This means that for every one unit of increase in the training, there was an increase of about 4.9 points in the PPDTS score.

The level of psychological preparedness increased significantly in the intervention group from baseline to posttest, while in the control group it remained unchanged, as revealed by the GEE estimates of the adjusted mean of psychological preparedness (PPDTS) over time, with covariates between the control and intervention groups after estimates of standard errors (Figure 2).

Secondary outcomes: LOT, SES, and GSE

In terms of optimism (LOT), there was a significant difference between the groups ($B = -0.09$; 95% CI, -28 to 2.63 , $p = 0.003$) and in the group-by-time effect ($B = 0.16$; 95% CI, -1.76 to 2.08 , $p = 0.009$). There was also a significant difference in the self-esteem (SES) by time effect ($B = 0.23$; 95% CI, -0.21 to 0.67 , $p = 0.008$). In addition, the group-by-time effect differed significantly with regard to self-efficacy (GSE) ($B = 2.3$; 95% CI, 0.18 – 4.41 , $p = 0.033$) (Table 2). In all of these variables, the experimental group showed improved scores compared with the control group.

Sensitivity analysis

A sensitivity analysis was conducted to compare the original model (using the per protocol/PP principle) to evaluate the robustness of study's findings. The results revealed that compared with the original model (PP), the adjusted GEE model (ITT) had essentially similar group, time, and group-by-time effects among the outcome measures, except for a better group effect of LOT and group-by-time effects of LOT and GSE ($p < 0.05$), but fewer group and group-by-time effects of SES. For the primary outcome (PPDTS), the ITT model was stronger in the group-by-time effect, which was significant ($p < 0.05$), when compared with the per protocol model (Supplementary Table S3).

Subgroup analysis

The mean of the PPDTS score, out of a possible total score of 60, was 32.32 at baseline (T_0) and 31.96 in the posttest (T_1) for the control group ($z = -5.45$, $p > 0.05$), whereas it

TABLE 1 Profile of participant demographic characteristics by group at baseline

Demographic characteristics	Control group	Intervention group	χ^2/U	p
	n = 75	n = 75		
	Mean (SD)/ No. (%)	Mean (SD)/ No. (%)		
Age	28.72 (5.59)	28.49 (7.96)	2266	0.052
Work experience	6.57 (5.01)	6.75 (7.36)	2418.5	0.137
Gender			0.027	0.870
Male	47 (56)	45 (52.2)		
Female	37 (44)	39 (46.4)		
Marital status			3.56	0.313
Single	41 (54.7)	47 (62.7)		
Married	31 (41.3)	28 (37.3)		
Divorced	2(2.7)	-		
Education level			0.62	0.733
Diploma	27 (35.5)	26 (34.7)		
Bachelor's degree	43 (57.3)	46 (61.3)		
Master's degree	5 (6.7)	3 (4)		
Workplace			97.19	0.000
Public hospital	31 (41.3)	23 (30.7)		
Private hospital	0	52 (69.3)		
University hospital	44 (58.7)	0		
Work department			1.54	0.464
Emergency room	27 (36)	20 (26.7)		
Intensive care units	32 (42.7)	36 (48)		
Surgical departments	16 (21.3)	19 (25.3)		
Current position			0.73	0.865
Registered nurse (RN)	48 (64)	44 (58.7)		
Licensed practical nurse (LPN)	23 (30.7)	25 (33.3)		
Ward manager (head of department)	3 (4)	4 (5.3)		
Educator	1 (1.3)	2 (2.7)		
Have you got experience with disasters? (yes)	3 (4)	3 (4)	0.000	0.988
Have you received any training related to psychological preparedness (yes)	0	3 (4)	3.06	0.08
Have you received any training related to disasters in general? (yes)	5 (6.7)	11 (14.7)	2.52	0.113

was 33.52 for the experimental group at baseline increasing to 43.09 at T_1 ($z = 6.6$, $p < 0.05$). Within-group changes were not significant in the control group over time. The between-group analysis of the PPDTs scores of the two study groups at the posttest revealed a statistically significant difference ($U = 3772$, $p < 0.05$), with the group that received the training having a higher mean rank. Comparing the results of the subgroup analysis obtained by the GEE, at posttest the difference in PPDTs scores between the two study groups was also statistically significant (Wald $\chi^2 = 13.04$, $p < 0.05$) (Supplementary Table S4). In terms of effect size estimations, Cohen's d was 1.41, representing a large effect size.

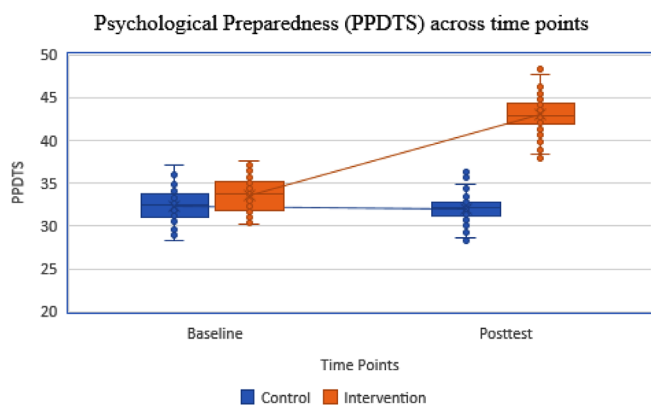
DISCUSSION

The findings revealed that PFA training had a significant effect on the psychological preparedness of the nurses in the intervention group. PFA evaluation (attitudes/self-confidence, skills, and knowledge), self-efficacy, optimism, and trait anxiety also differed significantly between the two groups, with the PFA group showing improved results. There was a significant difference in self-esteem and PTSD by time effect only. This implies that the PFA training was effective at improving the study's primary outcome and most secondary outcomes, and that the intervention had a large effect size.

TABLE 2 General equation estimation model of psychological preparedness (PPDTS), GSE, LOT, trait anxiety, SES, PFA evaluation (attitudes, skills, and knowledge), and PTSD by group and time effect (adjusted model using ITT)

Outcomes	Parameter estimates of the GEE models											
	Group effect				Time effect				Group-by-time effect			
	B (95% CI)	SE	Wald χ^2	p	B (95% CI)	SE	Wald χ^2	p	B (95% CI)	SE	Wald χ^2	p
PPDTS	-3 (-8.66 to 2.66)	2.89	1.1	0.298	0.01 (-0.56 to 0.58)	0.29	0.002	0.968	4.9 (1.16 to 9.74)	2.19	6.19	0.013
GSE	-2.3 (-5.32 to 0.73)	1.54	2.22	0.136	0.1 (-0.14 to 0.35)	0.13	0.66	0.418	2.3 (.18 to 4.41)	1.08	4.53	0.033
LOT	-0.09 (-2.8 to 2.63)	1.39	0.004	0.003	0.25 (-0.026 to 0.52)	0.14	3.15	0.076	0.16 (-1.76 to 2.08)	0.98	0.03	0.009
T-anxiety	9.12 (4.88 to 13.36)	2.16	17.75	0.000	1.36 (0.29 to 2.44)	0.55	6.16	0.013	-7.33 (-10.66 to -3.99)	1.7	18.53	0.000
SES	-0.87 (-3.52 to 1.78)	1.35	0.41	0.843	0.23 (-0.21 to 0.67)	0.22	1.06	0.008	0.08 (-2.01 to 2.17)	1.07	0.01	0.938
PFA evaluation												
Attitudes	-6.74 (-12.03 to 1.45)	2.7	6.24	0.012	0.1 (-0.19 to 0.39)	0.15	0.47	0.492	6.65 (2.31 to 11)	2.22	9.02	0.003
Skills	-7.86 (-13 to -2.16)	2.91	7.29	0.007	0.25 (-0.06 to 0.55)	0.15	2.53	0.112	6.86 (2.14 to 11.57)	2.41	8.12	0.004
Knowledge	-5.04 (-6.49 to -3.59)	0.74	46.12	0.000	0.04 (-0.13 to 0.21)	0.09	0.2	0.622	4.68 (3.63 to 5.73)	0.53	76.62	0.000
PTSD	-7 (-14.98 to 0.97)	4.07	2.97	0.085	-0.92 (-1.69 to 0.16)	0.39	5.57	0.018	1.53 (-4.07 to 7.12)	2.86	0.29	0.593

Abbreviations: GSE: general self-efficacy; ITT: intension-to-treat; LOT: Life Orientation Test; PFA: psychological first aid; PPDTS: Psychological Preparedness for Disaster Threat Scale; PTSD: posttraumatic stress disorder; SES: self-esteem; T-anxiety: trait anxiety.

**FIGURE 2** Change in psychological preparedness (PPDTS) between the intervention and control groups before and after PFA training

Psychological preparedness following PFA training

Nurses in the experimental group had improved psychological preparedness for disasters following the PFA training, while there was no change in the control group. The results of this study are similar to those of Schafer, Snider, and van Ommeren (2016), in that after PFA training, the trainees felt confident and more prepared to provide assistance to those affected by disasters. In a study of medical service volunteers that included nurses, it was shown that their confidence in their ability to assist distressed people, their preparation for disaster situations, and their ability to provide support to those with psychological problems following a disaster were all significantly enhanced after PFA training (Chandra et al., 2014). On the other hand, PFA training improved the trainees' knowledge and understanding of the roles and

responsibilities of PFA helpers, and of the practical application of psychosocial support strategies during an acute crisis (Sijbrandij et al., 2020). A study by Cheung (2015) also found that PFA pre-disaster training was effective at providing the skills of self-care and mutual support in preparing for disaster responses among auxiliary medical service personnel, including nurses. In this study, nurses in the control group reflected on their preparedness without having received such training, which highlights the improvements among nurses in the intervention group as a result of the training that was provided. The large effect size found in this study indicates a noteworthy difference between the control and intervention groups, with the intervention group having significantly better outcomes. This study provides stronger evidence for the intervention effect than other studies (Chandra et al., 2014; Cheung, 2015; Schafer et al., 2010; Sijbrandij et al., 2020).

Effectiveness of the PFA intervention: PFA knowledge, skills, and attitudes

The political conflict in Palestine is complex, requiring nurses to be well prepared for daily situations that can be unpredictable. Furthermore, limited resources add to the nurses' stressors, so that different levels of psychological support are required. Training nurses in PFA may help to provide early psychosocial support following traumatic events for victims as well as for the nurses themselves (Guterman, 2005; Schafer et al., 2010). The results in this study relating to knowledge of the application of PFA are similar to those from Cheung (2015) and Park and Choi (2020), which found improved knowledge of PFA among critical incident responders and mental health practitioners after they had received the training. Nurses in the control group were not exposed to PFA, and



hence received low scores in PFA knowledge. In Schafer et al. (2010), staff trained in acute emergencies reported significant benefits from the PFA orientation. Furthermore, in another study (Akoury-Dirani et al., 2015), knowledge and readiness were significantly enhanced after training in the concepts and application of PFA.

Skills and attitudes were also improved, as seen in the ability of the participants to apply the PFA principles in their work and in their personal lives, and also in their feelings of positivity about the ways in which they interacted and had contact with people. They may have had more understanding of the psychological assistance they could provide and more confidence in helping people experiencing emotional distress. The results of the PFA training in our study, alongside those of other studies, support the effectiveness of PFA training in providing psychological assistance to health personnel. Given the differences in attitudes, skills, and knowledge at baseline between the groups in this study, the improvement in these outcomes among the PFA training group might suggest only to a certain degree that the trained nurses became more able to support themselves and others in times of disaster (Guterman, 2005; Kılıç & Şimşek, 2019).

The nurses in this study seem to have benefited from the education they received, such as from the information on coping, effective ways of contacting and engaging with survivors, and of addressing immediate safety issues, needs, and concerns. In particular, the PFA training offered in the Palestinian context for this study was modified in content, with real experiences of the Palestinian community presented as scenarios for simulation learning. This training motivated the participating nurses and was found to be effective in enhancing their psychological preparedness for disaster, and their attitudes toward the application of PFA in future events.

Personality variables and PTSD

In the intervention group, a significant improvement in the nurses' personality variables including their self-efficacy, self-esteem, and optimism was seen after the PFA training; trait anxiety and PTSD also decreased, while these outcomes remained unchanged in the control group. These results are similar to those of Cheung (2015) and Kılıç and Şimşek (2019). Such improvements may enable those receiving PFA training to provide emotional support to those in need during disasters. Furthermore, the findings from our international survey demonstrated that psychological preparedness would be greatly influenced by dispositional optimism and self-esteem. There was also a moderately reverse association between trait anxiety and psychological preparedness (Said et al., 2020). This suggests that with PFA training, nurses could further enhance their status in terms of dispositional optimism, self-esteem and reduced anxiety. Such improvements can be interpreted as a set of characteristics moving together: as one improves, the other one follows. Nurses trained in PFA can help reduce the psychological effects of traumatic events. This

appears to be due to improvements in their skills, attitudes, and self-confidence in applying PFA to provide assistance in decreasing initial posttraumatic distress and post-initial disaster adjustment. Psychosocial support, through PFA practice, can reduce anxiety and other negative psychological reactions and promote optimism (Everly et al., 2014; Hobfoll et al., 2007). Self-esteem can increase with optimism (Scheier and Carver, 1985), and mental well-being problems such as PTSD may be reduced in the presence of good self-esteem (Adams and Boscarino, 2006). These traits may thus be contributing to higher psychological preparedness.

The PTSD levels (8% had high PTSD) in this study were less than those reported among nurses in other studies. For example, Jung et al. (2020) found that PTSD was experienced by approximately 57% of nurses, with 25% experiencing full PTSD following the outbreak of Middle East respiratory syndrome. The lower level of severe PTSD symptoms among Palestinian nurses in this study could be due to different reasons. The nurses included in this study reported a medium level of optimism and relatively low trait anxiety, outcomes that could be related to levels of PTSD (Jakšić et al., 2012). Nurses with less PTSD in this study had increased self-esteem and dispositional optimism. It is therefore possible that lower PTSD was related to optimism and less trait anxiety in this sample. It is also possible that such disaster training would have had an influence on the nurses who were trained on how to strengthen their ability to decrease the chances of developing PTSD following a disaster. Another explanation for the lower PTSD levels in our study may be related to the high level of resilience experienced among the participants. Alkaissi et al. (2019) found that approximately 40% of the Palestinian nurses surveyed in one hospital had high resilience. Resilience could have been an important trait in protecting against PTSD in this study. However, our study did not assess resilience and its relationship to PTSD. Resilience could be assessed in relation to PTSD and other outcome variables in future studies. Nevertheless, the PTSD levels in this study were similar to those reported in an international sample of disaster responders (Said et al., 2020). The outcome variables of nurses in the control group were at similar levels at baseline and posttest, because they were not exposed to PFA training. This highlights the effect of the PFA training on improving self-efficacy, self-esteem, and optimism and on reducing PTSD and trait anxiety.

Limitations

Methodologically, quasi-experimental designs that involve a nonrandom selection of samples may lead to biases in relation to treatment effects (Schweizer et al., 2016). Although the selected hospitals were assigned randomly to the control and experimental groups, the extent of possible biases and the generalizability of the results need to be further investigated. Further research should include other nurses from different countries to substantiate these findings. Furthermore, the results were limited to an immediate assessment after the PFA



training. The longer-term effects of the PFA training program are unknown, and it is important to conduct follow-ups in future studies to determine whether the training will have longer-lasting effects. Finally, as the nurses appeared highly motivated to join the study, the study was at risk of self-selection bias (Moss et al., 2019), which may have affected the validity of the findings. Furthermore, future studies should have larger samples and controlled trial designs to identify and recommend the kind of training that is most appropriate to enhance psychological preparedness, and to evaluate the effects (both short term and long term) of specific training programs on psychological preparedness for disasters, targeting nurses to help them tackle the mental health issues caused by traumas.

Implications for nursing and health policy

It is suggested that encouraging and negotiating with health administrators and policymakers to adopt the PFA training, which incorporates group discussions and simulation role-play exercises on the concepts and practice of PFA, alongside the more common physical preparedness training, will enhance the psychological preparedness of nurses who are disaster responders. Psychological support and PFA training should be offered to nurses to better prepare them for traumas, emergencies, and disasters. Hospital disaster plans should incorporate strategies to ensure that nurses have adequate capacities and can endure the impacts of different kinds of trauma, particularly psychological aspects. It is necessary to update policies to ensure that appropriate strategies for drills will include scenarios that focus on psychological care for both nurses and victims.

A recent systematic review of all nursing disaster-related education programs over the past 20 years showed that only a small percentage of the programs (13.3%) were dedicated to (physical and psychological) preparedness alone, with an additional 17.4% including preparedness in wider programs on preparedness, response, and recovery (Loke et al., 2021). This suggests that there is an acute need to prepare nurses to deal with both their own emotions and the emotions of disaster victims in a better way.

The International Council of Nurses (ICN) Core Competencies in Disaster Nursing (2019) indicates that "...emergency plans and institutional policy include the expectation that basic first aid can be administered by all nurses" (point II.6.1, p. 11). While psychological PFA is not explicitly mentioned as part of "basic first aid," because one of the competencies is to provide psychological care, this suggests that PFA is a necessary element in the preparation of nurses for disasters. In their next update of the Core Competencies document, the ICN could consider highlighting more clearly the need for psychological preparedness, in light of accumulating evidence on its positive effects in the mental well-being of nurses, to complement physical and situational preparedness. Disaster preparedness policies do not often include mention of psychological preparedness, but considering the mental health impact

of disasters, there should be a more structured approach to psychological preparedness. Nongovernmental organizations have an important role to play in filling a gap in the preparedness of nurses for disasters and in providing continuing education programs on PFA and psychological preparedness.

CONCLUSIONS

This study is unique as it contributes to the research evidence related to the effect of PFA and the role of personality variables on the psychological preparedness of nurses who are first responders. The personality variables include self-efficacy, self-esteem, and optimism. To the best of our knowledge, this is the first study to evaluate the effects of PFA training on personality variables. The results of this study provide evidence that PFA training would be an effective method for improving psychological preparedness.

The Palestinian nurses in this study, who face unique situations as they deal with daily political conflicts and conflict-related violence and destruction, indicated that they benefited from the PFA training. Nurses trained in PFA may be able to alleviate the psychological effects of a conflict, address the psychological needs of those affected by disasters, and care for themselves. The incorporation of real experiences in the PFA training with the scenario-based simulation and debriefing, improved their psychological preparedness. This may enhance their ability to face psychological adversity.

Finally, more sophisticated studies can be conducted to investigate whether similar findings are generated when nurses from different specialties receive PFA training, or when the PFA is delivered online. This will help to establish evidence on whether PFA training can be regularly included in disaster preparedness programs.

ACKNOWLEDGEMENTS

We would like to thank all nurses who participated in this study, as well as nurse managers in the respected hospitals who facilitated the participation of nurses in this study.

FUNDING

This work was not supported by research funding.

CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

PERMISSIONS

Permissions were obtained from respected authors of the tools and scales used in this study as appropriate. Permission was also obtained from the author of the PFA program to adopt and modify the program in this study.


AUTHOR CONTRIBUTIONS

Study design: NS, AM, VC; data collection: NS; data analysis: NS, AM, VC; study supervision: AM, VC; manuscript



writing: NS, AM, VC; critical revisions for important intellectual content: NS, AM, VC.

ORCID

Nizar B. Said PhD, MSN, BSN, RN  <https://orcid.org/0000-0002-9373-610X>

REFERENCES

- Adams, R.E. & Boscarino, J.A. (2006) Predictors of PTSD and delayed PTSD after disaster. *The Journal of Nervous and Mental Disease*, 194(7), 485–493. <https://doi.org/10.1097/01.nmd.0000228503.95503.e9>
- Agarwal, V., Sharma, S., Gupta, L., Misra, D.P., Davalbhakta, S., Agarwal, V., Goel, A. & Aggarwal, S. (2020) COVID-19 and psychological disaster preparedness – an unmet need. *Disaster Medicine and Public Health Preparedness*, 14(3), 387–390. <https://doi.org/10.1017/dmp.2020.219>
- Akoury-Dirani, L., Sahakian, T.S., Hassan, F.Y., Hajjar, R.V. & Asmar, K.E. (2015) Psychological first aid training for Lebanese field workers in the emergency context of the Syrian refugees in Lebanon. *Psychological Trauma: Theory, Research, Practice, and Policy*, 7(6), 533–538. <https://doi.org/10.1037/tra0000028>
- Al Harthi, M., Al Thobaity, A., Al Ahmari, W. & Almalki, M. (2020) Challenges for nurses in disaster management: a scoping review. *Risk Management and Healthcare Policy*, 13, 2627–2634. <https://doi.org/10.2147/rmhp.s279513>
- Alkaiissi, A., Said, N., Almahmoud, O., Al-ziben, L. & Zaitoun, R. (2019) Personal characteristics and behavioral factors that promote resilience among nurses: a cross-sectional study. *Palestinian Medical and Pharmaceutical Journal*, 4(2), 73–87.
- Barten, D.G., Klokman, V.W., Cleef, S., Peters, N.A., Tan, E.C. & Boin, A. (2021). When disasters strike the emergency department: A case series and narrative review. *International Journal of Emergency Medicine*, 14(49), <https://doi.org/10.1186/s12245-021-00372-7>
- Brooks, S.K., Dunn, R., Amlôt, R., Greenberg, N. & Rubin, G.J. (2018) Training and post-disaster interventions for the psychological impacts on disaster-exposed employees: a systematic review. *Journal of Mental Health*, 1–25. <https://doi.org/10.1080/09638237.2018.1437610>
- Chandra, A., Kim, J., Pieters, H.C., Tang, J., McCreary, M., Schreiber, M. & Wells, K. (2014) Implementing psychological first-aid training for medical reserve corps volunteers. *Disaster Medicine and Public Health Preparedness*, 8(1), 95–100. <https://doi.org/10.1017/dmp.2013.112>
- Cheung, Y.L. (2015) *Psychological first aid as a public health disaster response preparedness strategy for responders in critical incidents and disasters* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database (3707483).
- Choi, Y.-J. (2020) Psychological first-aid experiences of disaster health care workers: a qualitative analysis. *Disaster Medicine and Public Health Preparedness*, 14(4), 433–436. <https://doi.org/10.1017/dmp.2019.87>
- Cohen, J. (1992) A power primer. *Psychological Bulletin*, 12(1), 155–159. <https://doi.org/10.1037//0033-2909.112.1.155>
- Corey, J., Vallières, F., Frawley, T., De Brún, A., Davidson, S. & Gilmore, B. (2021) A rapid realist review of group psychological first aid for humanitarian workers and volunteers. *International Journal of Environmental Research and Public Health*, 18, 1452. <https://doi.org/10.3390/ijerph18041452>
- Des Jarlais, D.C., Lyles, C., Crepaz, N. & the TREND Group (2004) Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: the TREND statement. *American Journal of Public Health*, 94(3), 361–366. <https://doi.org/10.2105/ajph.94.3.361>
- Dong, L. & Bouey, J. (2020) Public mental health crisis during COVID-19 pandemic, China. *Emerging Infectious Diseases*, 26(7), 1616–1618. <https://doi.org/10.3201/eid2607.202407>
- Enshassi, A., Chatat, T., Von Meding, J. & Forino, F. (2017) Factors influencing post-disaster reconstruction project management for housing provision in the Gaza strip, occupied Palestinian territories. *International Journal of Disaster Risk Science*, 8(4), 402–414. <https://doi.org/10.1007/s13753-017-0155-4>
- Everly, G.S. & Lating, J.M. (2017) *The Johns Hopkins guide to psychological first aid*. Baltimore, MD: Johns Hopkins University Press.
- Everly, G.S., Barnett, D.J. & Links, J.M. (2012) The Johns Hopkins model of psychological first aid (RAPID-PFA): curriculum development and content validation. *International Journal of Emergency Mental Health and Human Resilience*, 14(2), 95–103.
- Everly, G.S., Lee McCabe, O., Semon, N.L., Thompson, C.B. & Links, J.M. (2014) The development of a model of psychological first aid for non-mental health trained public health personnel. *Journal of Public Health Management and Practice*, 20(5), S24–S29. <https://doi.org/10.1097/phh.0000000000000065>
- Findley, P.A., Halpern, J., Rodriguez, R. & Vermeulen, K. (2016) Psychological first aid: a tool for mitigating conflict in the Middle East. In: Isralowitz, R. & Findley, P. (Eds.) *Mental health and addiction care in the Middle East* (pp. 155–170). Cham, Switzerland: Springer.
- Foa, E.B., McLean, C.P., Zang, Y., Zhong, J., Powers, M.B., Kauffman, B.Y. et al. (2015) Psychometric properties of the posttraumatic diagnostic scale for DSM-5 (PDS-5). *Psychological Assessment*, 28(10), 1166–1171. <https://doi.org/10.1037/pas0000258>
- Fox, J.H., Burkle, F.M., Bass, J., Pia, F.A., Epstein, J.L. & Markenson, D. (2012) The effectiveness of psychological first aid as a disaster intervention tool: research analysis of peer-reviewed literature from 1990–2010. *Disaster Medicine and Public Health Preparedness*, 6(03), 247–252. <https://doi.org/10.1001/dmp.2012.39>
- Gandhi, S., Sahu, M., Govindan, R., Nattala, P., Gandhi, S., Sudhir, P.M. & Balachandran, R. (2021) Psychological preparedness for pandemic (COVID-19) management: perceptions of nurses and nursing students in India. *PloS One*, 16(8), e0255772. <https://doi.org/10.1371/journal.pone.0255772>
- Guterman, P.S. (2005) Psychological preparedness for disaster. Available from: http://www.ceep.ca/resources/Guterman2005_Psychological_Preparedness_for_Disaster.pdf [Accessed 25th September 2020]/
- Hassankhani, H., Parizad, N., Gacki-Smith, J., Rahmani, A. & Mohammadi, E. (2018). The consequences of violence against nurses working in the emergency department: A qualitative study. *International Emergency Nursing*, 39, 20–25. <https://doi.org/10.1016/j.ienj.2017.07.007>
- Hobfoll, S.E., Watson, P., Bell, C.C., Bryant, R.A., Brymer, M.J., Friedman, M.J. et al. (2007) Five essential elements of immediate and mid-term mass trauma intervention: Empirical evidence. *Psychiatry: Interpersonal and Biological Processes*, 70(4), 283–315. <https://doi.org/10.1521/psyc.2007.70.4.283>
- IBM Corp. (2017) *IBM SPSS statistics for windows, Version 25.0*. Armonk, NY: IBM Corp.
- International Council for Nurses. (2019) Core competencies in disaster nursing Version 2.0. Available from: https://www.icn.ch/sites/default/files/inline-files/ICN_Disaster-Comp-Report_WEB_final.pdf [Accessed 4th November 2021].
- Jakšić, N., Brajković, L., Ivezić, E., Topić, R. & Jakovljević, M. (2012) The role of personality traits in posttraumatic stress disorder (PTSD). *Psychiatria Danubina*, 24(3), 256–266.
- James, L.E., Welton-Mitchell, C., Noel, J.R. & James, A.S. (2020) Integrating mental health and disaster preparedness in intervention: a randomized controlled trial with earthquake and flood-affected communities in Haiti. *Psychological Medicine*, 50(2), 342–352. <https://doi.org/10.1017/s0033291719000163>
- Jung, H., Jung, S.-Y., Lee, M.H. & Kim, M.S. (2020) Assessing the presence of post-traumatic stress and turnover intention among nurses post-middle east respiratory syndrome outbreak: the importance of supervisor support. *Workplace Health & Safety*, 1–10. <https://doi.org/10.1177/2165079919897693>
- Kılıç, N. & Şimşek, N. (2018) Psychological first aid and nursing. *Journal of Psychiatric Nursing*, 9(3), 212–218. <http://doi.org/10.14744/phd.2017.76376>
- Kılıç, N. & Şimşek, N. (2019) The effects of psychological first aid training on disaster preparedness perception and self-efficacy. *Nurse Education Today*, 83, 104203. <https://doi.org/10.1016/j.nedt.2019.104203>
- Langan, J.C., Lavin, R., Wolgast, K.A. & Veenema, T.G. (2017) Education for developing and sustaining a health care workforce for disaster readiness. *Nursing Administration Quarterly*, 41(2), 118–127. <https://doi.org/10.1097/naq.0000000000000225>



- Labrague, L., Hammad, K., Gloe, D., McEnroe-Petite, D., Fronda, D., Obeidat, A. et al. (2017) Disaster preparedness among nurses: a systematic review of literature. *International Nursing Review*, 65(1), 41–53. <https://doi.org/10.1111/inr.12369>
- Loke, A.Y., Guo, C. & Molassiotis, A. (2021) Development of disaster nursing education and training programs in the past 20 years (2000–2019): a systematic review. *Nurse Education Today*, 99, 104809. <https://doi.org/10.1016/j.nedt.2021.104809>
- Malkina-Pykh, I.G. & Pykh, Y.A. (2015) Evaluating psychological preparedness for threat and impacts of climate change disasters and its change after intervention: integrated modelling approach. In: Şener, S.M., Brebbia, C.A. & Özçevik, O. (Eds.) *Disaster management and human health risk IV: reducing risk, improving outcomes*. WIT Transactions on the Build Environment, Vol. 150. Southampton, UK: WIT Press, pp. 259–271. <https://doi.org/10.2495/DMAN150231>
- Malkina-Pykh, I.G. & Pykh, Y.A. (2013) An integrated model of psychological preparedness for threat and impacts of climate change disasters. *Disaster Management and Human Health Risk III*, 113, 121–132. <https://doi.org/10.2495/dman130121>
- Mojtahedi, M., Sunindijo, R.Y., Lestari, F., Suparni & Wijaya, O. (2021) Developing hospital emergency and disaster management index using TOPSIS method. *Sustainability*, 13(9), 5213. <https://doi.org/10.3390/su13095213>
- Moss, H.A., Melamed, A. & Wright, J.D. (2019) Measuring cause-and-effect relationships without randomized clinical trials: quasi-experimental methods for gynecologic oncology research. *Gynecologic Oncology*, 152(3), 533–539. <https://doi.org/10.1016/j.ygyno.2018.11.006>
- Park, J.S. & Choi, Y.-J. (2020) The effect of a simulated fire disaster psychological first aid training program on the self-efficacy, competence, and knowledge of mental health practitioners. *Disaster Medicine and Public Health Preparedness*, 14, 1–7. <https://doi.org/10.1017/dmp.2020.184>
- Rosenberg, M. (1965) *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Reuters news (2021) Available from: <https://www.reuters.com/world/middle-east/israel-gaza-violence-shows-few-signs-slowing-global-diplomacy-ramps-up-2021-05-18/> [Accessed 4th November 2021].
- Said, N.B. & Chiang, V.C. (2020) The knowledge, skill competencies, and psychological preparedness of nurses for disasters: a systematic review. *International Emergency Nursing*, 48, 100806. <https://doi.org/10.1016/j.ienj.2019.100806>
- Said, N.B., Molassiotis, A. & Chiang, V.C. (2020) Psychological preparedness for disasters among nurses with disaster field experience: an international online survey. *International Journal of Disaster Risk Reduction*, 46, 101533. <https://doi.org/10.1016/j.ijdrr.2020.101533>
- SAMHSA. (Substance Abuse and Mental Health Services Administration). (2014) Trauma-informed care in behavioral health services. Treatment improvement protocol (TIP) series 57. HHS Publication No. (SMA) 13–4801. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Sato, H., Techasrivichien, T., Omori, A., Ono-Kihara, M. & Kihara, M. (2018) Psychosocial consequences among nurses in the affected area of the great east Japan earthquake of 2011 and the Fukushima complex disaster: a qualitative study. *Disaster Medicine and Public Health Preparedness*, 13(3), 519–526. <https://doi.org/10.1017/dmp.2018.100>
- Schafer, A., Snider, L. & Sammour, R. (2016) A reflective learning report about the implementation and impacts of psychological first aid (PFA) in Gaza. *Disaster Health*, 3(1), 1–10. <https://doi.org/10.1080/21665044.2015.1110292>
- Schafer, A., Snider, L. & Van Ommeren, M. (2010) Psychological first aid pilot: Haiti emergency response. *Intervention*, 8(3), 245–254. <https://doi.org/10.1097/wtf.0b013e32834134cb>
- Scheier, M.F. & Carver, C.S. (1985) Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219–247. <https://doi.org/10.1037//0278-6133.4.3.219>
- Scheier, M.F., Carver, C.S. & Bridges, M.W. (1994) Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the life orientation test. *Journal of Personality and Social Psychology*, 67(6), 1063–1078. <https://doi.org/10.1037//0022-3514.67.6.1063>
- Schwarzer, R. & Jerusalem, M. (1995) Generalized self-efficacy scale. In: Johnston, M. Wright, S. & Weinman, J. (Eds.) *Measures in health psychology: a user's portfolio. Causal and control beliefs*. Windsor, UK: NFER-NELSON, pp. 35–37.
- Schweizer, M., Braun, B. & Milstone, A. (2016) Research methods in health-care epidemiology and antimicrobial stewardship—quasi-experimental designs. *Infection Control & Hospital Epidemiology*, 37(10), 1135–1140. <https://doi.org/10.1017/ice.2016.117>
- Shah, K., Bedi, S., Onyeaka, H., Singh, R. & Chaudhari, G. (2020) The role of psychological first aid to support public mental health in the COVID-19 pandemic. *Cureus*, 12(6), e8821. <https://doi.org/10.7759/cureus.8821>
- Sijbrandij, M., Horn, R., Esliker, R., O'May, F., Reiffers, R., Ruttenberg, L. et al. (2020) The effect of psychological first aid training on knowledge and understanding about psychosocial support principles: a cluster-randomized controlled trial. *International Journal of Environmental Research and Public Health*, 17, 484. <https://doi.org/10.3390/ijerph17020484>
- Spielberger, C.D., Gorsuch, R.L., Lushene, R., Vagg, P.R. & Jacobs, G.A. (1983) *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Von Strauss, E., Paillard-Borg, S., Holmgren, J. & Saaristo, P. (2017) Global nursing in an Ebola viral haemorrhagic fever outbreak: before, during and after deployment. *Global Health Action*, 10(1), 1371427. <https://doi.org/10.1080/16549716.2017.1371427>
- Wang, L., Norman, I., Xiao, T., Li, Y. & Leamy, M. (2021) Psychological first aid training: a scoping review of its application, outcomes and implementation. *International Journal of Environmental Research and Public Health*, 18(9), 4594. <https://doi.org/10.3390/ijerph18094594>
- Welton-Mitchell, C., James, L.E., Khanal, S.N. & James, A.S. (2018) An integrated approach to mental health and disaster preparedness: a cluster comparison with earthquake affected communities in Nepal. *BMC Psychiatry [Electronic Resource]*, 18, 296. <https://doi.org/10.1186/s12888-018-1863-z>
- Zulch, H., Morrissey, S., Reser, J. & Creed, P. (2012). Psychological preparedness for natural disasters. In *University College London (UCL) (Ed.) First International Conference on Urban Sustainability and Resilience*, London, United Kingdom.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

How to cite this article: Said, N.B., Molassiotis, A. & Chiang, V.C.L. (2022) Psychological first aid training in disaster preparedness for nurses working with emergencies and traumas. *International Nursing Review* 1–11. <https://doi.org/10.1111/inr.12749>