Nurses' attitude toward trauma-informed care in critical care units: A cross-sectional study

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Abstract
Objective: Trauma-informed care (TIC) is an innovative concept that recognizes the lasting impact of psychological trauma. Critical care nurses' attitude toward TIC plays an essential role in assessing, monitoring, and addressing trauma experienced by patients. This study aimed to describe critical care nurses' attitudes toward TIC in critical care units at Jordanian military hospitals.
Methods: This descriptive-analytical cross-sectional study was performed on 315 critical care nurses at seven military hospitals (two from the north, three from the center, and two from the south) in 2022. The data collection tool was the Attitudes Related to Trauma-Informed Care-35 (ARTIC-35) scale. Multi-stage sampling approach was used to recruit critical care nurses. Statistical Package for Social Science (IBM-SPSS) V. 23 was used to analyze data.
Results: In the sample of 315 nurses, gender was significantly associated with the reactions subscale ($P=0.001$). Also, there were statistical differences between nurses working in the emergency department and those working in intensive care units regarding the responses and behaviors subscales, with emergency department nurses scoring higher on the scale ($P=0.003$). Regarding in-service training in trauma-related care, the causes subscale was significantly different based on the number of training sessions with higher scores among nurses with higher training ($P=0.02$).
Conclusion: Critical care nurses had an unfavorable attitude toward TIC. Health organizations, nurse managers, universities, and other stakeholders should collaborate to achieve a national strategy to raise awareness about TIC. Much research is needed to explore nurses' attitudes toward TIC in diverse health sectors.
Keywords: Psychological Trauma and trauma-informed care, Critical care nurses, Jordan

Introduction

The majority of Americans have either witnessed a trauma exacerbated by a natural disaster or been in a potentially fatal accident, the latter being the most common type of exposure to traumatic events. In the United States, around half of the women (51.0%) and above 61.0% of men are reported to have experienced at least one trauma in their lifetimes (1). Exposure to traumatic events refers to any experience, perception, or incitement of an event or events posing a real or perceived threat to one's life, bodily integrity, or major injury. When something like that happens, that person reacts with extreme helplessness, terror, or astonishment (2). Psychological trauma, which has dramatically increased over the past two decades, has a significant impact on individuals, families, communities, and society (3-5).

Many issues can lead to psychological trauma, which is currently treated in psychiatric settings with what is known as trauma-informed care (TIC) (6). Currently, care settings are planned to encourage the core mechanisms of trauma recovery, reestablishing power via maximizing choice, control, safety, and independence, and building patient and staff self-confidence through universal changes in treatment style called TIC (6).

As health care providers, nurses work through a holistic approach to increase TIC within health care services. Unfortunately, some studies suggest that nurses are often left disorganized by unclear definitions and, as a result, fail to understand how to use TIC concepts in real-world settings (4,7). In several nursing disciplines, like mental health (4), neonatal and pediatric acute care, emergency (8), perinatal care (9), and correctional settings, there have

been efforts to integrate TIC into mainstream care (10). It is still primarily unknown how nurses perceive TIC and how knowledgeable they are about it.

Numerous studies have identified short-term and ineffective TIC training programs and in-service training for increasing caregiver awareness of the effects of trauma in healthcare settings, improving attitudes toward TIC practice, and developing caregiver flexibility (4,11). Critical diseases and multiple hospitalizations expose patients to high-risk stressors, pain, and delirium with associated psychotic experiences in addition to individualism and little communication. Many patients recall extremely frightening Intensive care unit experiences due to life-threatening diseases (12). There is a need to deal with each client assuming they are having a traumatic experience.

Presently, limited TIC training is offered to healthcare providers in critical care units in Jordan. However, nurses are required to provide the best patient-centered TIC for patients experiencing traumatic events throughout their lifetimes. There have been few studies on nurses' attitudes toward TIC in Jordan. Moreover, most studies have exclusively explored and described mental health nurses' attitudes. Studies to understand nurses' attitudes toward TIC using methods such as detailed interviews are necessary in critical care units as it is unclear whether knowledge of TIC results in more favorable attitudes. However, the present study described the nurses' attitudes regarding TIC and the differences between TICs based on socio-demographic data.

Education and training related to basic information about trauma are necessary for all healthcare providers. They must understand how violence influences the lives of the people they treat. Nursing curricula for example should include courses about therapeutic communication and relationships so that every interaction can be effective in the recovery process and can reduce the possibility of re-traumatization. Critical care nurses have the best knowledge, skills, and abilities to enhance and support patient recovery as it might reduce the Intensive Care Unit's length of stay, increasing patient turnover and, eventually, saving health care costs (13). The current study, however, tried to identify the extent of the nurses' knowledge of TIC, as it is a matter that affects patients' lives and enables them to be aware of how to heal patients. Thus, the present study is fundamental for the staff's knowledge expansion, as it is a matter that will positively affect the healing process.

This study aimed to describe critical care nurses' attitudes toward TIC in critical care units at Jordanian military hospitals by answering the following research questions:
1. What are the mean levels of nurses' attitudes toward TIC (causes, responses, job behaviors, self-efficacy, and reactions) in Jordan?
2. Are there any significant differences between the mean subscales of attitudes toward TIC and nurses' socio-demographic characteristics (marital status, age, gender, level of education, experience years, work setting, and participation in job-related training or trauma-related training)?

Methods

A descriptive cross-sectional design was used in this study. The study was conducted among critical care nurses worked at seven military hospitals in Jordan in 2022, Multistage sampling approach was used to recruit the sample from seven military hospitals. G. Power software statistics was used to determine the minimum sample size. The final sample size in the study was 315. After gaining the Institutional Review Board (IRB) approval at the Faculty of Nursing at the Applied Science Private University and the military hospitals in Jordan (IRB No.: Faculty 2021-2022-02-07), a pre-appointment was arranged by contacting the heads of departments in each hospital. Permission from the administrators and the head nurses in each critical care unit was obtained to recruit the study sample. A total of 350 questionnaires were delivered to the possible participants in the seven hospitals, and they were instructed to sign the consent form and drop the completed questionnaire in a sealed box.

In Jordan, the health sector consists of educational, public, private, international, and charity sectors. The public sector includes the Ministry of Health, the Center for Diabetes, university hospitals, and the Royal Medical Services (RMS).

The data for this research was collected from the RMS. In the event of disasters and significant accidents, the RMS handles complicated medical situations with huge expenses and plays a prominent academic role. The RMS supports the medical professions in the Kingdom and is involved in the teaching and training of medical and nursing workers. The ten military hospitals and thirteen military medical facilities serve all of Jordan's regions. Seven hospitals distributed throughout the territories were used to randomly select the participants (two from the north, three from the center, and two from the south).

Jordan is geographically and administratively divided into three territories: the central, the northern, and the southern. The sample was distributed according to the original distribution of the study population members: four hospitals in the central territory, three hospitals in the northern territory, and three hospitals in the southern territory.

The participants were recruited from critical care units at RMS; thus, the study results will be generalized to all populations of critical care nurses who work in military hospitals in Jordan. The inclusion criteria included having at least one year of experience in critical care units in military hospitals, working in critical care units, coronary care units, burn units, and emergency departments, and

willingness to complete and return the questionnaire to the researcher. Managers who did not work nor had direct contact with patients were excluded.

Based on the G*Power version 3.1.9.4 software, the sample size was calculated based on effect size (0.25), alpha (00.05), and power (0.80) as 153 participants. The number of critical care nurses working at all military hospitals was around 605. The IRB approved the study to be conducted in seven military hospitals in Jordan. This study's data collection instrument consisted of socio-demographic data, including age, gender, marital status, level of education, work experience, work setting, and participation in TIC training sessions, and the Attitudes Related to Trauma-Informed Care (ARTIC-35) scale.

The ARTIC-35 scale contains 35 items of two opposing statements, including five subscales designed to identify the essential constituents of attitudes toward TIC. The nurses were instructed to answer on bipolar seven-point scales, graded from 1 to 7, representing their attitude to every pair of contradictory statements. The ARTIC-35 scale includes five subscales, each including seven items. The subscales include: 1) Causes, with seven items related to respondents' behaviors and outcomes of trauma histories; 2) Responses, with seven items related to attitudes to how nurses deal with the challenging performances of clients; 3) Job behaviors, with seven items related to attitudes to whether nurses contemplate problematic behaviors of patients as a reflection of their behaviors, 4) Self-efficacy, with seven items related to attitudes related to nurses' confidence in their qualified ability to help clients, and 5) Reactions, with seven items related to attitudes to how nurses respond and engage in self-care when they feel their work is becoming unbearable (3).

The total scoring for the ARTIC-35 has two steps. First, some items are reversed. Second, the average of the subscale items is calculated. The score can range from 1 to 7 for each of the five subscales. Each subscale can be calculated for the participants who have completed answering most of the items (i.e., at least 4 items).

The ARTIC-35 instrument has acceptable levels of reliability and validity. More than one type of validity is assured, such as confirmatory factor analysis and construct and criterion-related validity. Baker et al also tested many types of reliability, such as internal consistency: Cronbach's alpha, which was excellent ($\alpha = 0.91$). (3). Test-retest reliabilities calculated using Pearson's correlations were also strong, with correlations of 0.84 at ≤ 120 days, 0.75 at 121–150 days, and 0.77 at 151–180 days. In this study, the instrument's reliability was confirmed by a Cronbach's alpha of 0.88.

Statistical analysis was done using Statistical Package for Social Science (IBM-SPSS) version 23. Descriptive and inferential statistics were used. Means, frequencies, percentages, and ranges were used to describe the concepts. ANOVA and t test were employed to detect significant differences between some demographic characteristics.

Ethical approval was acquired from the University and Royal Medical Services Institutional Review Board. Participation in this study was voluntary, and participants were informed that they had the right to withdraw from it at any time without consequences. There were no physical or psychological risks in participating in this study. The researcher also assured the participants that the collected data would only be used for this study. The participants' confidentiality and anonymity were maintained.

Results

The number of questionnaires distributed in the seven military hospitals was 350, and 315 were eventually returned with a response rate of 90.0%. Most nurses were female and had bachelor's degrees (64.8% and 95.9%,

Table 1. Participants' socio-demographic characteristics (N = 315)

Variable	Value
Gender, No. (%)	
Male	111 (35.2)
Female	204 (64.8)
Level of education, No. (%)	
Bachelor's	302 (95.9)
Master's	13 (4.1)
Work setting, No. (%)	
Emergency department	105 (33.3)
Intensive care unit	198 (62.9)
Coronary care unit	10 (3.2)
Burn unit	2 (0.6)
Trauma-informed care-related training, No. (%)	
None	226 (71.7)
One	59 (18.7)
Two	19 (6.1)
Three	11 (3.5)
Marital status, No. (%)	
Single	109 (34.8)
Married	202 (64.1)
Divorced/Widow/Widower	4 (1.1)
Age, Mean ± SD	290.0 ± 50.06
Number of years of experience	7.97 ± 4.99

Table 2. Nurses' levels of attitudes toward trauma-informed care (N = 315)

TIC attitude subscale	Theoretical range of subscale (midpoint)	Median	Mean
Causes	7–49 (28)	26 (9–40)	3.68
Responses	7–49 (28)	25 (11–44)	3.61
Job-behaviors	7–49 (28)	27 (11–43)	3.81
Self-efficacy	7–49 (28)	27 (15–41)	3.84
Reactions	7–49 (28)	26 (14–44)	3.84
Total	35–245 (140)	Median = 134	Mean = 3.75

respectively). In addition, around 71.7 % stated that they had never attended any in-service training or trauma-related training. Regarding marital status, most nurses were married (64.1%). Furthermore, the nurses' mean age was 29.0 ± 5.06, and their mean experience level was 7.97 ± 4.99. Table 1 summarizes the socio-demographic

characteristics of the study sample.

As shown in Table 2, the total score on the ARTIC-35 was based on the sum of each participant's items ranging from 35 to 245. Therefore, this study's mean ARTIC-35 score was 134, less than the midpoint of 140, indicating unfavorable TIC attitudes. The mean score for the five

Table 3. Mean scores of the items in each of the attitudes toward trauma-informed care subscales

Items	Mean
Causes items	
1- Clients' learning and behavior problems are rooted in behavioral mental health condition	3.58
6- The clients were raised this way, so there is not much I can do about it now.	3.60
11- Many clients just do not want to change or learn.	3.80
16- Clients have had to learn how to trick or mislead others to have their needs met.	3.69
21- Clients could act better if they wanted to.	3.69
26- Clients do the right thing one day but not the next.	3.79
31- If things are not going well, it is because the clients are not doing what they need to do.	3.64
Responses items	
2- Focusing on developing healthy, healing relationships is the best approach when working with people with trauma histories.	3.83
7- To function in the real world, clients need to experience real-life consequences.	3.86
12. Clients often are not yet able or ready to take responsibility for their actions. They need to be treated flexibly and as individuals.	3.96
17. Helping clients feel safe is the best way to eliminate undesirable behaviors.	3.60
22- It is best to treat clients with respect and kindness from the start so they know I care	3.87
27- Rule enforcement is the most important thing when managing a crisis.	3.93
32- I am most effective as a helper when focusing on a client's strengths.	3.88
Job-behaviors items	
3- Being very upset is normal for many of the clients I serve.	3.85
8. If clients say or do disrespectful things to me, it makes me look like a fool in front of others.	3.58
13- I realize that clients may not be able to apologize to me after they act out.	3.92
18- When I make mistakes with clients, it is best to move on and pretend it did not happen.	3.66
23- Healthy relationships with clients are the way to good client outcomes.	3.89
28- If I do not control clients' behavior, bad things will happen to property.	40.02
33- Being upset does not mean that clients will hurt others.	3.79
Self-efficacy items	
4- I do not have what it takes to help my clients.	3.67
9- I have the skills to help my clients.	3.92
14- Each day is uniquely stressful in this job.	4.16
19- The ups and downs are part of the work, so I do not take it personally.	3.88
24- I can do my best each day to help my clients.	3.96
29- I dread going to work because it is too complex and intense.	3.52
34- If I told my colleagues how hard my job is, they would support me.	3.83
Reactions items	
5- It is best not to tell others if I have strong feelings about the work because they will think I am not cut out for this job.	3.84
10- The best way to deal with burnout at work is to seek support.	3.69
15- The fact that my work impacts me means that I care.	3.99
20- The most effective helpers find ways to toughen up – to screen out the pain – and not care so much about the work.	3.88
25- It is because I am good at my job that the work is affecting me so much.	3.94
30- How I am doing personally is unrelated to whether I can help my clients.	3.73
35- When I feel myself "taking my work home," it is best to bring it up with my colleagues or supervisor(s).	3.89

Table 4. Relationship of nurses' attitude toward TIC subscales based on gender, work setting, and in-service education (N = 315)

	Causes	Responses	Job-behaviors	Self-efficacy	Reactions
Gender[a]	10.02	0.89	0.49	0.81	3.20*
Male	3.75	3.68	3.85	3.89	40.04
Female	3.65	3.59	3.80	3.82	3.74
Setting[a]	1.24	2.99*	2.12*	1.62	0.86
ER	3.76	3.81	3.97	3.95	3.90
ICU	3.66	3.53	3.76	3.81	3.82
In-service training[b]	3.32*	1.34	1.23	1.37	0.49
None	3.63	3.58	3.82	3.82	3.81
One	3.65	3.61	3.83	3.84	3.94
Two	4.12	3.90	3.42	4.16	3.85
Three	4.14	3.91	3.90	3.90	3.96

[a] Independent t-test; [b] ANOVA test. *Significant at level < 0.05 two-tailed

subscales was 3.75, less than the mean cut-off point of 4. All median subscales were less than 28, indicating unfavorable attitudes. All the items of the ARTIC-35 score were measured by their mean, as illustrated in Table 3.

As shown in Table 4, there was no statistically significant difference regarding attitude toward TIC in all subscales except the reaction subscale, with a significant difference between scores of male (40.04 ± 0.80) and female (3.74 ± 0.79) participants, with $t = 3.20$ and $P = 0.001$. Therefore, the response subscale score significantly differed between the emergency department (3.81 ± 0.71) and intensive care unit (3.53 ± 0.86), with $t = 2.99$ and $P = 0.003$. The results showed a significant difference in the job-behaviors subscale between the emergency department (3.97 ± 0.74) and the intensive care unit (3.76 ± 0.88), with $t = 2.12$ and $P = 0.035$.

Based on the study instrument, there was a significant difference in the causes subscale between the four groups that participated in trauma-related or job-related training. Other subscales, however, did not exhibit any statistically significant variations ($F = 3.32$, $P = 0.020$). the Least Significant Difference Test (LSD) test was used in additional post-hoc analysis to distinguish between these variations. According to the findings, there was a significant difference in the mean score between the two trauma-related trainings (4.12 ± 0.53) and the three trauma-related trainings (4.14 ± 0.73). With one trauma-related training, the mean score was 3.65 ± 0.85; in the case of no trauma-related training, there was no significant difference (3.63 ± 0.82).

Discussion

The current study revealed that the critical care nurses' overall attitude toward TIC in critical care units at military hospitals in Jordan was unfavorable (median = 134, total mean = 3.75). As previously mentioned, this new concept

may have many facets with a need for better definition and further clarification through special TIC, taking into consideration the nurse/patient ratio, workload, and the priority of essential care with a lack of psychological support to explain the unfavorable attitudes toward TIC. The results of this study were in line with those of Hoysted et al (14). Similar to this study's results, Isobel et al conducted a study on social welfare workers, who showed negative attitudes attributed to the fatigue that workers could encounter and a lack of training (15). However, consistent with our study, research conducted in neonatal intensive care units (NICUs) investigated the NICU nurses' attitude, knowledge, and competency toward TIC. The nurses showed judgmental attitudes toward caregivers of babies with neonatal abstinence syndrome (16). Similar to this study's results, social welfare workers showed a negative attitude, attributed to the fatigue that workers could encounter and a lack of training.

In contrast to this study, the few studies that have assessed nurses' attitudes toward TIC have all revealed favorable attitudes (17-19). To the best of the researcher's knowledge, there are few, if any, studies in the literature reporting unfavorable attitudes in nurses toward TIC, and this might be explained by the scarcity of such studies in developing countries where psychological health-related topics draw less attention than in developed countries and where negative attitude toward TIC is expected.

The current finding contradicted other studies conducted at hospitals implementing special TIC programs, where nurses' attitudes were more favorable (20-23). Other studies whose findings were in contrast with those of the current study include a study conducted by Kassam-Adams et al on 232 nurses working in a pediatric acute trauma center. The study indicated a favorable attitude toward TIC in nurses in each item of the ARTIC scale, with more than 90% of participants showing favorable attitudes (19).

In addition, Cilia Vincenti et al conducted a study on mental health nurses from a psychiatry hospital in Malta and showed results contradictory to those of the current study. They found that although the nurses included in the study had little knowledge and awareness of TIC, they expressed a favorable attitude toward TIC. They stated that the cultural values of Mediterranean nations focusing on the protection of those who are most vulnerable might be the most significant contributor to these results (18).

This study presented a significant relationship between nurses' gender and attitudes toward TIC. The reaction subscale examines how people identify their situation, look for support, and manage their coping mechanisms in response to secondary trauma or victimization. This shows men handle intense emotions by being more assertive and socializing more when inquiring about the patient's medical background. Men are more likely to ask

for help when they are burned out or sensitive, and they utilize their jobs as a good way to screen out suffering and prevent further harm.

Nurses who work in emergency departments in Jordan have a favorable attitude toward TIC in the "Responses" and "Job-Behaviors" subscales at critical care units at Royal hospitals in Jordan. There might be a variety of reasons for the current study's findings. The lack of awareness about TIC and the degree of knowledge is a crucial contributing element to the unavailability of training programs, workshops, and seminars on TIC practice.

Nurses' job behaviors at the Emergency Room (ER) focus on empathy rather than control due to contact with oriented and conscious patients and open communication at the ER. As for the ICU, CCU, and Burn Unit, most inpatients are under anesthesia or in a high-stress situation. This reduces the nurse's or the health care workers' empathy communication and focuses on the burden and limited time spent with the patient's family. Moreover, it is worth mentioning that there is a debate in the literature on the positive impact of knowledge on nurses' attitudes toward TIC. Thus, some researchers have supported the suggestion of a link between a higher level of knowledge and nurses' attitudes (24), while others have argued that there is no link.

The study also showed that participation in work-related training or trauma-related training leads to statistically significant differences. The results showed that nurses' attitude toward TIC in terms of "causes" shows significant differences based on participation in work-related training or trauma-related training. In contrast, other subscales showed no significant difference. The TIC training program positively impacted and changed attitudes toward TIC members.

Limitations of the study

This was the first study conducted in Jordan to examine nurses' attitudes to TIC and the first to target critical care nurses at seven military hospitals whose health services cover all geographical territories. The research tool was modern, understandable, and easy to use. In addition, the sample size was good and represented many critical care nurses at RMS.

However, the study has a few limitations. The study used a cross-sectional design to collect the data at a given time. Thus, the primary limitation of this design is that the temporal link cannot be determined because the results can change over time. The data were collected from the RMS hospitals, and this is considered a limitation as other health sectors like government, private, and university hospitals were omitted. Finally, using a questionnaire is considered a limitation for several reasons, including its subjectivity. Also, self-assessment is time-consuming, so participants might not be sincere while answering the questionnaire and might not understand some items or questions.

Conclusion

This study reveals that critical care nurses have unfavorable attitudes to TIC. Health organizations, nurse managers, and other administrators should develop a national strategy to raise awareness of TIC. Health organizations, nurse managers, and other administrators should collaborate to create national training programs and implement TIC into everyday practice. Furthermore, universities should ensure students know TIC, provide effective trauma-informed treatment, and have favorable attitudes towards TIC. More research is needed to explore nurses' attitudes to TIC before and after TIC program implementation.

Based on the study's findings, we recommend identifying a successful TIC approach, stressing the importance of preventing and reducing the risk of psychological trauma, implementing training programs to increase the awareness and attitudes toward TIC, and conducting studies on various healthcare sectors, including, ministry of health hospitals, and private hospitals. Nursing leaders and administrators need to consider TIC in critical units to reduce the burden of burnout and secondary trauma. Randomized clinical trials with pre-post and mixed methods should be conducted to examine the feasibility, short-term effects, and costs of TIC implementation.

Authors' Contribution
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Competing Interests
None.

Ethical Approval
After acquiring IRB approval at the Faculty of Nursing at the Applied Science Private University and the requested hospitals (IRB No.: Faculty 2021-2022-02-07), a pre-appointment was arranged by

contacting the heads of departments in each hospital. Permission to recruit the study samples was obtained from the administrators and the head nurses in each critical care unit.

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