**Nursing roles in a disaster zone: Experiences and lessons learned from Turkey's earthquake events**

Keywords: disaster, emergency nursing, humanitarian aid, collaboration, fieldwork, critical care nursing, multicultural team

**Abstract**

Background: Disasters – both natural and man-made -- are a global concern and significantly influence human health and welfare. Nursing is an essential contributing factor to efficient organization both before and during the disaster, as well as effective field treatment in the disaster zone.

 Aim: The study explores the experience of the Israeli humanitarian delegation sent to the Turkey earthquake during February 2023; from the preparation in Israel, through the delegation’s activities at the disaster site, up until the conclusions drawn at the end of the delegation. Of particular note: unlike other disasters, the delegation had to integrate with functioning local healthcare systems and their protocols.

Methods: Following approval from ethics’ committee, 22 nurses participating in the humanitarian delegation were interviewed in three focus group meetings after signing a consent form. The interviews were recorded and transcribed verbatim. The text was analyzed using a content analysis approach. 32 COREQ's items' criteria for qualitative research reports were used.

Findings: The study revealed three main themes and 12 subthemes:

* Pre-departure preparation
* Work in the disaster site
* Post-delegation conclusions

Conclusion: Of the many essential functions that nurses serve in a disaster zone, we found particularly noteworthy the vital contribution of nurses to enabling integration with existing local healthcare systems. Nurses actively pursued a respectful and sensitive approach in this multicultural setting, recognizing its influence and impacts on the quality of care.

Implications for Nursing and Health Policy: Nurse managers and health policy stakeholders should utilize the study insights for future team planning training programs and for fostering collaboration between international healthcare teams.

**Introduction**

In the recent decade, the global world has experienced an increase in the incidence of disasters both natural and man-made. An early response is necessary for humanitarian help and saving lives (Li et al., 2023). During February 2023, two earthquake events struck the Kahramanmaraş region of southeastern Turkey within 9 hours of each other, with a magnitude of 7.8 and 7.6 respectively. An estimated 57,000 people died in the most fatal event in the history of modern Turkey (Hussain et al., 2023).

Nurses play a central role in field hospital functions in emergency settings (Pourvakhshoori et al., 2017; Segev, 2023). They are essential for the hospital's operation both clinically and psychologically, coordinating care and providing on-the-ground solutions for the many problems and challenges that arise ; maintaining safety and constant communication in disaster areas (Richards et al., 2023); and preserving ethical standards for disaster victims (Moradi et al., 2020). Although nursing already fills these roles in emergency zones, there are still gaps in nursing education around preparedness training: lack of disaster preparedness competence (Labrague et al., 2018; Taskiran & Baykal, 2019), poor disaster education and research (Al Harthi et al., 2020), and prevention of long-term negative impact on nurse’ emotional state (Johal & Mounsey, 2017; Mounsey et al., 2016; Segev, 2023).

The Israel Defense Force Medical Corps (IDF-MC) has had rich experience sending humanitarian delegations and field hospitals to disaster arenas since the 1953 Greece earthquake (Alpert et al., 2018). Between 2010 and 2016, IDF-MC deployed six humanitarian hospitals worldwide (Glick et al., 2016). The IDF-MC delegation was deployed to Turkey on February 8th, 24 hours after the outbreak of the disaster. The delegation members included 58 physicians, 32 nurses, 5 paramedics, 15 laboratories, imaging personnel, and 23 administrative staff; they were all brought to an existing hospital building near the disaster area, collaborating with local medical staff (*The IDF “Olive Branches” Humanitarian Delegation*, 2023). Many factors contribute to the successful operation of a foreign field hospital, such as effective logistics, proper equipment, respecting the orientation demands of a foreign environment, and bridging cultural gaps and language barriers (Alpert et al., 2018). Collaboration with local and international teams is described as essential in enhancing the quality of medical care (Bar-On et al., 2013). Foreign medical delegations usually establish their field hospitals and do not use local medical equipment and infrastructures (Naor & Bernardes, 2016); unlike in Turkey, where the delegation integrated into an existing facility.

The current study describes and analyzes the challenges and insights of the IDF nursing delegation members in this unique situation..

**Aim of Study**

To explore nurses' experiences as part of the humanitarian delegation to Turkey, and to derive lessons to be learned from those experiences.

**Methods**

Research Design

We used focus groups as the qualitative methodology, which helps explore complex phenomena (Hamilton & Finley, 2019). For more than sixty years, this methodology elicits richer descriptions of experiences, through interactions in group conversation (Sim & Waterfield, 2019). The authors were guided by COREQ 32 reported checklist (Tong et al., 2007).

Participants and Settings

Initially, we mapped out all the nurses who participated in the humanitarian delegation and contacted them by phone. Of 32 nurses, 22 agreed to participate in one of the three focus groups we designed. The Zoom meeting format was chosen to enable participants from around the country to join at a time of their choice. 10 male and 12 female nurses with backgrounds in critical care or midwifery were interviewed (Table 1).

Data Collection

Three focus groups were conducted between March 2023-May 2023. Participants were connected to Zoom meetings for 60-90 minutes. Two authors with qualitative interview experience guided the focus groups: one opened the conversation by presenting the researchers and the study aim, and the other guided the flow of the conversation. An interview guide with leading questions was prepared prior to the focus groups’ meetings, containing questions such as : "What were the nursing preparations prior to departure from Israel?"; "Describe your role in the delegation team"; "What challenges did you face?” and "How did you deal with those challenges?". All focus group conversations were video-audio recorded, and were later transcribed verbatim.

Data Analysis

The transcripts were professionally translated from Hebrew to English and back-translated from English to Hebrew. All the transcripts were read and re-read by the researchers. The repetition of text was coded and categorized. Main themes and sub-themes were extracted from the text.

Ethical Considerations

All participants received written information about the aim of the study. They all signed a consent form for their participation in the study, and for their responses to be taped. Standard deidentification techniques were used. Participants had the freedom to answer or refuse to answer the questions. Access to the content was limited to the primary researchers. The study was approved by the IDF-Medicine Corps review board (No. 0902-2023) and the XXX-XXXX University Ethics Committee (No. 0006518-2).

Rigor and Trustworthiness

The researchers measured the rigor and trustworthiness of the study data according to four criteria: credibility, transferability, dependability, and confirmability (Krefting, 1991). The primary investigators -- experts in qualitative methodology – each analyzed the data separately; and later compared and discussed their findings. Finally, participants were given the opportunity to read the findings and confirm their accuracy.

**Findings**

The research findings provide a prism for observing the process of integrating between local and foreign teams across multiple barriers: diplomatic and political tensions between Israel and Turkey, different languages, and cultural and social gaps Informants described an initial sense of distance or “otherness”; over time, the interactions while providing care were characterized by a greater sense of closeness.

The study's main findings will be presented along the axis of occurrence across a continuum of distancing/closeness, as experienced and described by the informants; in each of the three main themes identified in the study: (Table 2):

* Pre-departure preparation
* Work in the disaster site
* Post-delegation conclusions

**Theme 1: Pre-departure preparation**

The nurses identified the first recruiting phase in preparation and organizing towards the mission. This phase was characterized by a positive sense of national mission, logistics’ issues, flattening hierarchy between the members of the delegation.

Subtheme 1: A sense of national mission

The staff responded positively to the request to join the mission. In the initial conversation, participants were given destination details and schedules. The sense of mission and partnership in a national mission outweighed their doubts, as described by three participants:

"I'm looking forward to it (Participant #2); I immediately jumped at the opportunity (Participant # 12). For me, it was a great excitement" (Participant # 7)…. "Curiosity and pride overcame all fears… (Participant # 12)...I chose to join really from a sense of mission. I think you don't overthink the details of what needs to be done, and if you believe in the mission....you just go And no matter what might happen to me - immediately, first of all, I said yes; …it was both an honor and a great privilege for me to participate in such a delegation" (Participant # 20).

Participant # 3 even added that it doesn't matter what the family situation was at that moment, as she described:

"I didn't think twice - the last time [I participated in such a delegation] I left a 5-month-old baby, and I didn't think this time either. When they asked me, I immediately said yes. First of all, this comes from a sense of mission; second, from a place where it seems obvious to me that you are called to the flag".

Similar enthusiasm and a sense of mission was expressed even by those who had participated in such delegations in the past, as expressed by Participant # 10:

"This is not my first mission; I work on medical flights. But as soon as there is a task - everything lights up. The strength, the heart, and the energies will all be on the alert. A state of uncertainty and mental flexibility. Uncertainty. But we prepare for all scenarios. Prepare the mind and the heart. For me there is such a RUSH that you want to arrive, want to be there already".

Subtheme 2: Logistics of the mission

Informants noted several aspects of logistics that came up during the preparation phase. One of the topics referred to the very long time from the gathering of the teams to the actual departure, as expressed by Participant # 15: "The fact that we received the alert in the morning hours of Monday and the final OK, received at 9-10 PM in the evening and you are on a hold mode for so many hours. We arrived at 8 AM in the morning; we were told our estimated take-off (to the disaster zone) time would be in the evening - and it was postponed and postponed and postponed and the 24 hours wait left an impression of disorganization "...

Participant # 16 continues: "There were many hours of waiting outside and inside the plane. From the moment of gathering it took 36 hours until we landed in Turkey".

Uncertainty is very common during emergencies; there are many things that are hard to anticipate in advance. One such difficulty is estimating the quantity and range of proper equipment that is required:

"There was a lack of wound - dressing equipment. The equipment that was packed was based on medical and surgical departments’ needs .. [such as] adapted to the treatment of pressure sores or contaminated wounds; which you don't get in the field"(Participant # 9) …."In terms of pediatrics' equipment, there were many improvisations and many things that there was no way to deal with and were simply spur-of-the-moment improvisations. It's [also] worth maybe adding more pediatrics' staff or pediatric care providers that will take care of children (Participant #12).

Subtheme 3: Flattening hierarchy

One interesting observation mentioned by all the interviewees was that the hierarchy between delegation members faded into the background. Everyone pitched in to do what was required in the organization phase:

"Prior to the deployment of an emergency room in the disaster zone, I do not function as an emergency room nurse. I load boxes and clean containers, assemble air conditioners, build tents. .. …. the person in charge of water and electricity, everyone works with everyone (Participant # 13) And there is no such thing as Professor, and there is no such thing as Lt. Col. (Participant # 9).. Until we arrive to the disaster zone, I agree with my colleague, everyone is equal" (Participant # 14).

Two interviewees added that the joint work contributed a lot in setting the tone for the entire mission:

 "This DOING is that everyone is equal and everyone does everything right from the beginning, it creates an atmosphere that the whole group is one thing, it is an important process" (Participant # 2)… "A mission of destiny... and for me personally it caused me to work with people in a better way and connect to them and the work really flowed better and I felt that everyone was pitching in and helping wherever possible in the following days" (Participant # 5).

**Theme 2: Work in the disaster site**

Work in the disaster zone was very challenging in several aspects: weather conditions, working with local teams, language barriers, and different standards of care.

Subtheme 1: Weather difficulties

Entering the disaster zone was challenging first and foremost because of the weather conditions, as described by Participants #18 and #1:

"The day we flew outbound, it was super rainy. All the equipment stood outside in the rain until they were put on the trucks... in Turkey it was also put on trucks where it was raining and cold... the tents were not prepared to receive staff members and there was not enough heating equipment".

Subtheme 2: Language barrier

Another difficulty in the disaster zone was the language. The local people spoke only Turkish and no English. Some Israelis had a medical background in Arabic; this enabled them to communicate with staff and patients, particularly the many refugees from Syria who were impacted by the earthquake. Participant # 22 gives her perspective:

"I think that we (nurses) naturally have more communication skills than other professions. Improvisation, body gestures, express everything with emotion and not just be cold and technical. Both me and others noticed that it was easier for us to communicate with the Syrian patients in Arabic. We as carers have taken care of Arabic patients in our professional career, and have a certain level of medically oriented Arabic".

Despite the fact that Participant # 18 could help a little being a Persian speaker, effective translation services came from Turkish Airlines, Turkey's national airline, which came forward to help, as she describes:

"Turkish Airlines staff who speak English, helped us amazingly. They didn't just help with the translation; they wanted to help beyond that. At the level of reassuring families, reassuring patients, lending a hand, giving us water, buying us milk for coffee... It is not obvious that people will return from a flight in Istanbul and come straight to a hospital to help translate and be there for hours until their next scheduled flight. It was an excellent initiative and it really helped. I also think that we learned to communicate with each other".

Subtheme 3: Different Standards of care

The significant challenge in this disaster zone lay in the Israeli delegation's entry to assist within existing healthcare facilities, on top of the diplomatic tensions between countries. Descriptions of the resulting tensions between local staff and the delegation recur in many of the transcripts:

"We entered a place, with a certain institutional behavior, with a certain way of working. For example, there were differences between us in handling sterile equipment and in how to take history and physical" (Participant # 15).

Subtheme 4: Communication between caring teams

On the one hand, the desire to provide quality and excellent care expresses closeness, on the other hand, the language barrier creates distance. The professional medical knowledge reflects closeness, on the other hand cultural gaps and different treatment approaches, create alienation. This is how the nursing staff described it:

"The Israeli team would follow a grand round routine to examine the patients. The Turkish team did not participate. The Turkish team made a separate round after that and then somehow they would try to have a discussion. In the first few days there was no discussion at all" (Participant # 16)…. "But when you started working and they saw how we insert a catheter into a peripheral vein and how we dress a wound, they quickly accepted us. The language of professionalism breaks barriers. Shortly after they sat with us, showing us family pictures on their phones and drinking coffee together" (Participant # 4).

Subtheme 5: Standard of care

Initially, there was suspicion and disagreement regarding medical approaches. As time passed, the nursing team learned how to integrate with the local team and how to work with them for the common goal:

"And suddenly a wounded patient would arrive and they (local teams) weren't sure about him- they called us, asked us to come and help" (Participant # 6)… "I think that after we received the first patient and they saw how we treated him, there was a kind of leap of faith and you could see it because when there were more difficult cases; a resuscitation or a child who was brought to us on the verge of death, they took a step back and really the local doctor in charge cried and asked us not to go (back home) because they understood that we were doing good, doing it with respect, while having a dialogue with them and having good intentions" (Participant # 22).

**Theme 3: Post-delegation conclusions**

In comparison, the gradual departure from the disaster zone while handing over the information and tools to the local teams went relatively smoothly. Besides the lessons learned from formal debriefings, a number of issues emerged from the focus groups that perhaps should be considered by further delegations, such as: ensuring the correct proportion of nurses to doctors, better use of the time until the delegation’s departure from Israel, and language compatibility of medical reporting software.

Subtheme 1: Nurse/doctor ratio

There were not enough nurses in proportion to the number of doctors, as reflected in Participant #16 interview:

 "The main perceived disadvantage...the numerical ratio between nurses and doctors in the workforce was not so balanced. I think there were more than enough doctors and too few nurses".

Subtheme 2: Better use of the pre-departure time

The time until the departure of the delegation from Israel should be used more effectively, to get to know the crew members, and for better briefing and preparation:

"We need to use this day (the day of getting ready for departure) in a more effective way even if it only means getting to know who I work with because I did all this myself, I started talking to people about who you are and what you are... so even if you get on the plane and you know Who you work with in advance, you start with some much better starting point" (Participant # 8).

In addition, the delegation's recruited nurses were tasked with the work of vaccinations. Some of the informants suggested that people not participating in the delegation should be assigned such logistical tasks.

"The deployed nurses vaccinated everyone on the delegation...I do think that an external person, can vaccinate and come and make some kind of order because there were those who wanted to work, I believe that everyone wanted to work. But there were those who had more and those who had less desire and it could have been much more effective" (Participants # 9,# 2,# 13).

Subtheme 3: Medical Reporting software

The computerized medical reporting system was new and unfamiliar to some of the delegation participants. In addition, the user interface in Hebrew made it difficult for local staff to use.

 "Our documentation system I have never seen it and I would have been happy to study it a little before" (Participant # 5)…"The Israeli computerized system... is irrelevant because it is in Hebrew and it is not translated to Turkish either, so in terms of the sheets that passed through to the Turkish, it is all in Hebrew so they would write notes and try to understand what we wrote" (Participant #1).

Subtheme 4: Processing the experience

From the focus groups, it was noted that nurses were contacted by military psychological staff after they had returned to Israel. However, there was a feeling that there was no group closure for the traumatic experience they went through, even if there were personal conversations and honorary events, as Participant # 9 explained:

"There is no closure in my eyes and it is missing. Everyone can talk about it on their own with their own frame but no one gathered the group. Three days ago I had dreams about Turkey again. I don't know where it came from..... There was a very nice delegation closing event initiated by medical corps that held an appreciation evening, but there was no room for talking".

**Discussion**

Three major themes emerged in this study divided into three time phases: pre-departure, work in the disaster site, and post-delegation conclusions. *Pre-departure of the delegation* was the first theme identified by interviewers. Nurses felt a sense of mission participating in the humanitarian aid delegation, highlighted logistics issues, and described equal team work between delegation members. International studies also point to the role of nurses' needs during the preparation phase before deployment, expressing the positive emotions of a sense of mission (Christensen & Wagner, 2022; Moradi et al., 2020) on one hand, and dealing with logistics concerns (Al Harthi et al., 2020; Alpert et al., 2018; Richards et al., 2023) on the other hand. Flattening the hierarchy among the delegation members contributed to cohese them into a united team, but we did not find prior mention in the literature.

*Work in the disaster site,* was the second emerged theme*.* Nurses mentioned environmental difficulties like weather, but were primarily focused on the interaction with locals, particularly with local medical teams. They uncovered cultural gaps and different perspectives, which formed formidable barriers, but also recognized in them a chance for potential collaboration. Consistent with the current study, the literature identified extreme weather conditions as a staff challenge (Hamdanieh et al., 2023). Because of massive infrastructure damage in the disaster zone, foreign delegations may only rarely find local buildings or equipment available for use (Naor & Bernardes, 2016). Working with a local medical team in an existing hospital -- as in this study -- is considered unique. Differences between cultural and professional perspectives amongst international groups of nurses have been known for many years (Purnell, 1991). Although studies highly recommended improving cultural knowledge, and thus improving collaboration with local medical teams (Bar-On et al., 2013; Chin et al., 2022; Lind et al., 2012), to date we have found no cases of real-time collaboration between foreign-local teams at a single disaster site.

*Return to Israel and post-delegation conclusions*, was the third major theme. The nurses shared their lessons of serving at disaster zone. In their interview, the recommendation to increase the nurse/doctor ratio emerged. This, while a previous study pointed to the need for more expert physicians in field hospitals (Burnweit & Stylianos, 2011). Better use of pre-departure time and internationalization of medical reporting software were also identified as future lessons. While studies have revealed an inappropriate preparedness level (Al Harthi et al., 2020; Taskiran & Baykal, 2019), this study explores new insights coming from nurses themselves about more efficiently utilizing the pre-deployment time, by providing relevant information on the disaster zone, and actively encouraging team cohesiveness. The need to process the experience was the last revealed insight. Although many studies emphasized the importance and the need to provide psychological support to such teams (Johal & Mounsey, 2017; Mounsey et al., 2016; Sadhaan et al., 2022; Segev, 2023; Xue et al., 2020; Zahos et al., 2022), and delegation participants were offered some degree of post-delegation support, the current study indicates further improvement would be very welcome.

**Study limitations and future Directions**

Relying only on nurses' perspective might be the study limitation. Interviewed participants from other professions or logistics’ disciplines from foreign and local perspectives, would have enhanced a broader perspective on the topic. We recommend interviewing participants from different disciplines to shed light on multidisciplinary team work on local and international levels.

**Conclusion**

This study emphasizes the crucial role of nursing in emergency time. Nurses may contribute from their multitasks experience point of view to design effective preparedness. They act as multicultural moderators between local-foreign teams and as a cohesive factor in the multidiscipline delegation. The study contributes to evidence based emergency knowledge and adds a new perspective on disaster nursing benefits that might be utilized for better future interventions in disaster times.

**Implications for Nursing and Health Policy**

Nursing managers and educators might use the study's insights to improve disaster and emergency nursing competence to enhance care capabilities. Recommendations that emerged from nurses' experience could improve future planning programs from pre-deployed to the closure of the disaster mission. Health stakeholders may mainly benefit from the unique insights revealed here addressing the multicultural team collaboration in emergency state, planning international emergency collaboration training for local-foreign partnerships.

**Author Contributions**

Study design: RS, LZ, AS; Data collection: RS, MS, RG, AS; Data analysis: RS, AS; manuscript writing: RS, MS, AS; Critical reading and revisions: RS, MS, RG, LZ, AS. Study supervision: RS, AS.

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