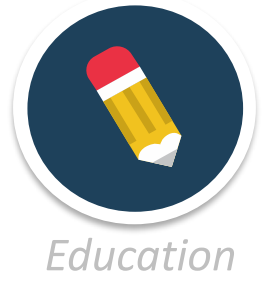




Assessment of Nursing Knowledge and Preparedness for Nuclear Disaster

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Introduction

In the event of nuclear incident, burn care teams are most likely to be called upon to respond. Notable nuclear events include Fukushima Dai-ichi event in Japan, Chernobyl in the Ukraine, and the Three Mile Island disaster in Pennsylvania, USA. Yet, knowledge gaps exist related to nuclear disaster response.

Purpose

The primary objective of this study is to determine nurses' baseline knowledge of preparedness for and treatment of victims of a nuclear event.

Methods

- As part of a quality assurance initiative, we surveyed staff nurses (n=26) in an acute pediatric burn facility to assess their knowledge of nuclear sources in the local area, preparedness for a nuclear event, and treatment of radiation exposure.
- Survey domains included a nursing self-assessment of knowledge base and comfort in treating victims of nuclear events, followed by questions assessing nursing knowledge of the proper response to nuclear fallout as well as treatment of symptoms to acute radiation exposure.
- Questions were provided in nominal category format (multiple choice, or true/false) and Likert scale.
- Data was summarized using frequencies and descriptive statistics.

Results

General Characteristics of Survey Participant (Table 1)

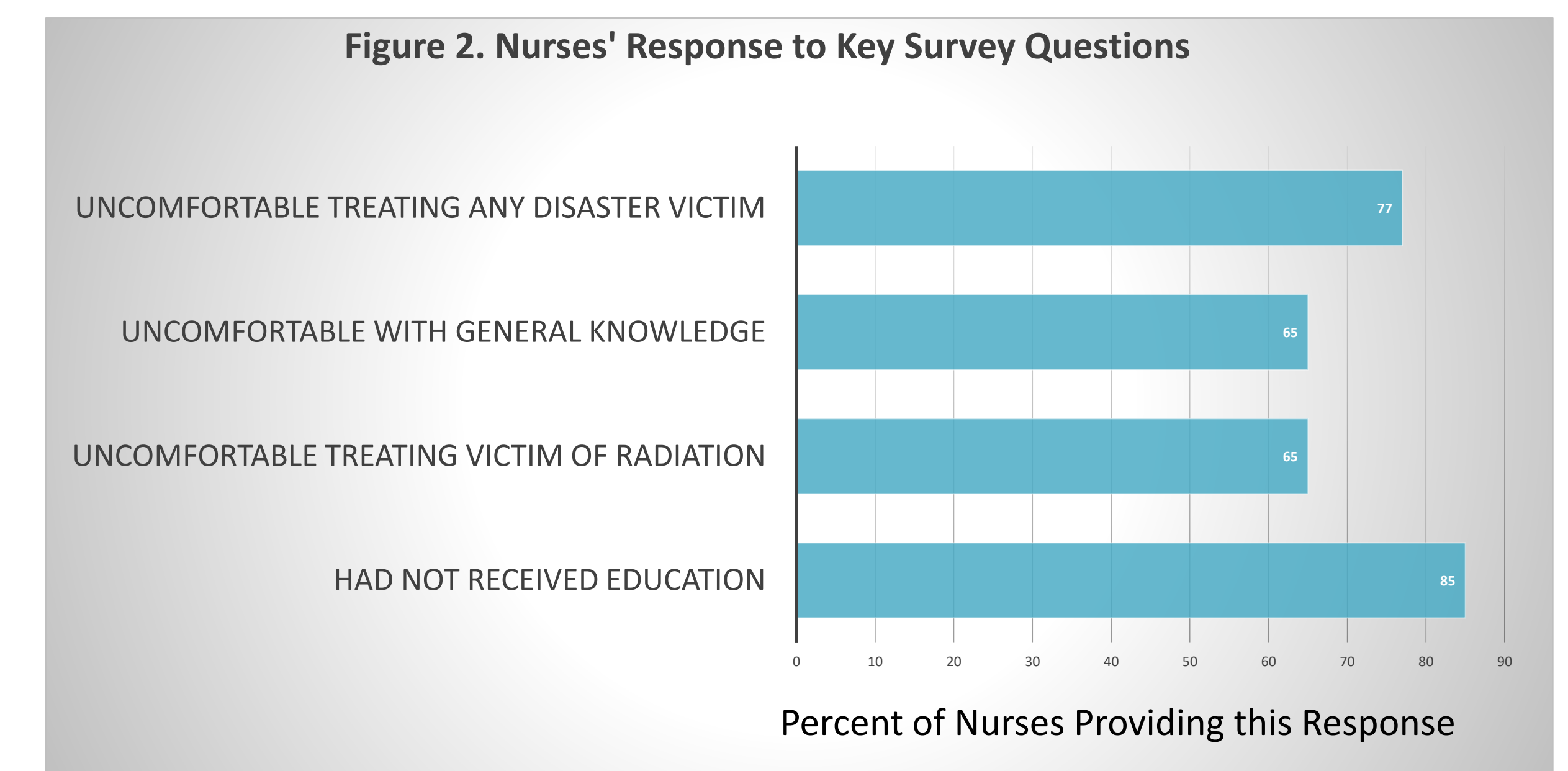
- A total of 26 nurses responded to this survey.
- Average number of years of experience in nursing was 22 years (range:1-43 years)
- 80% of participants had a baccalaureate degree or higher in nursing.

Survey Findings are shown in Figure 1:

- 85% percent of participants reported not having had formal training in nuclear disaster response
- 65% reported being uncomfortable both in their knowledge base and their ability to provide care to patients with acute radiation exposure
- 80% reported not feeling able to treat victims of a major nuclear disaster
- Only two nurses demonstrated a perfect score in questions related to response and treatment of radiation exposure
- On average participants answered 68% of questions correctly
- A large majority reported the need for more education.

Table 1. Demographic Characteristics of Survey Participants

Age (years)	46 ± 11 SD (Range: 25-63)
Gender (N)	F24/M2
Years of Nursing Experience	22 ± 12 SD (Range: 1-43)
Highest Degree Earned (N)	Diploma=1 Associate =4 Baccalaureate=19 Doctorate=2



Sample of Survey Questions Assessing Nurses' Knowledge of Nuclear Disasters

3. On a scale of 0-10, 0 indicating not at all comfortable, 10 being completely comfortable, what is your comfort level treating a patient who has been exposed to radiation?	0-10
5. If a nuclear disaster occurred tomorrow, would you feel comfortable treating victims of that disaster?	Yes, No
12. Due to damaging Electromagnetic Pulse (EMP) emission from a nuclear blast, what might you not be able to use within several miles of the blast site?	a. Cellphones b. Battery operated radios and electronics c. Television and internet d. Hand crank radios e. A and C only f. B and D only
17. What is usually the first symptom experienced by a patient with a moderate to severe acute radiation syndrome?	a. Lesions b. Generalized edema c. Vomiting d. Dark colored urine
18. What other associated injuries might you see in victims of a nuclear event?	a. Blast-related injury b. Flame burn c. Momentary blindness d. All of the above e. B only

Conclusions

A significant knowledge gap exists in proper response and treatment of nuclear disaster victims. Nurses in our facility report a lack of comfort in both their knowledge base and ability to treat these patients. Educational programming is needed and is being developed in our facility to improve competency and skill around nuclear disaster events.

Applicability to Practice

Results of this survey will be used to develop educational programming in nuclear disaster response. A post education survey will be used to assess change in nursing knowledge and preparedness according to these initial findings.

References

Noto Y. (2013). Role of nurses in a nuclear disaster: experience in the Fukushima Dai-ichi nuclear power plant accident. *Int Nurse Rev.* Jun;60(2):196-200.

