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Short Report

Differences in Risk Perception among Nurses Based on Experience

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We examined differences in risk perception among nurses based on experience. Forty-nine Japanese nurses participated in this study. They were divided into three groups based on length of time working as a nurse: the one-year group, the two-to-five-year group, and the over-15-year group. Pictures of nursing activity were displayed. Participants answered questions about (A) risk perception, (B) hazard perception, and (C) selecting behavior. The two-to-five-year group's C score was less than the one-year group's score. In A, no experience difference was seen. However, the two-to-five-year group's A score was lowest among the three groups. It can be thought that risk perception affects behavior selection. This study suggests that middle-career nurses have faulty risk perception and subsequently may choose risky behavior.

Key words: risk perception, nursing, experience

PURPOSE

Risk perception is a subjective evaluation of risks and is influenced by experience (e.g., Renge, 1998). This study seeks to examine whether nurses differ in risk perception. We also examine whether nurses differ in hazard perception and selecting behavior.

METHOD

Participants

Forty-nine Japanese nurses participated in this study. They were divided into three groups based on the length of time working as a nurse: one-year group ($N=23$, $M_{age}=23.26$ ($SD=2.65$), $M_{years\ of\ experience}=0.83$ ($SD=0$)), two-to-five-year group ($N=12$, $M_{age}=28.25$ ($SD=5.12$), $M_{years\ of\ experience}=3.79$ ($SD=0.99$)), and over-15-year group ($N=14$, $M_{age}=49.71$ ($SD=8.70$), $M_{years\ of\ experience}=24.43$ ($SD=7.47$)).

Procedure

We conducted this study in a group. A picture of a nursing activity was displayed for 25 sec. The picture was then removed, and participants answered three questions from a questionnaire.

Fig. 1. Example of pictures in this study.

The first question related to risk perception (Question (A)). Participants evaluated how risky the picture was (extremely risky (5), not at all risky (1)). The second question related to hazard perception (Question (B)). One picture had approximately three hazards. There are three kinds of hazards, one hazard requiring nursing knowledge (*knowledge*), another related to violations (*violation*), and a final hazard that could be found by non-nurses (*general*). The questionnaire listed three hazards and one dummy. Hazards and a dummy suitable for photo scenes were selected by five researchers and two nurses. For each scene of three hazards and one dummy, participants responded with "I found it" or "I didn't find it." We then required participants to describe risks derived from the hazards that they found in question B (Question (B')). The third question related to deciding on behavior (Question (C)). There were three choices: behave safely to avoid hazards (3), pay attention to the hazards (2), leave things as they are, or take more risk (1).

There were 16 scenes. Figure 1 presents an example of these scenes. This picture had the following three hazards: throwing a used gauze into the trash can in a patients room (*knowledge*), nurses without gloves (*violation*), overflowing trash can of the cart (*general*). We ensured that one photo had one of each hazard. Before the study began, the five researchers and two nurses plus another nurse and a nurse student checked these photos. In 16 scenes, they found a total of 49 hazards (18 knowledge items, 17 violation items, and 14 general items).

RESULTS

Figure 2 presents each group's mean score or items averaging 16 scenes. One-way analysis of variance (ANOVA) was performed to check experience differences separately. No experience differences were found in A or B. C demonstrated the main effect of experiment ($F(2, 46)=3.93$, $p<.05$). A high score in C means more safety. Multiple comparisons confirmed a significant difference between the two-to-five-year

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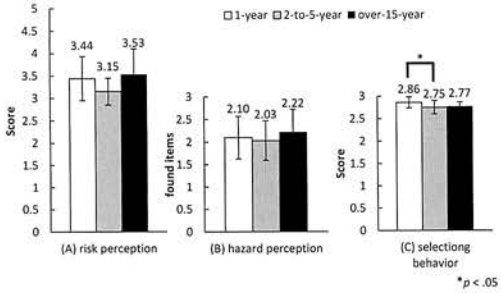

Fig. 2. Mean score or item for every group.

group and the one-year group ($p<.05$).

In question B, we calculated d' and β based on signal detection theory (d' represents sensitivity). If d' has a high score, stimulation can be easily detected. β represents a criterion. If β has a high score, the judgment is rigorous. Table 1 presents each group's d' and β. One-way ANOVA was performed to check experience differences. No experience differences were found in d' or β. We calculated the percentage of perceived hazards for every hazard (Fig. 3). Two-way ANOVA was performed. The dependent variable was the percentage of perceived hazard; the independent variables were kinds of hazard and experience groups. We did not observe significant interactions or main effects of experience and kind of hazard. In question B′, the one-year group averaged 1.43 items (SD= 0.26), the two-to-five-year group averaged 1.53 items (SD= 0.27), and the over-15-year group averaged 1.48 items (SD= 0.42). One-way ANOVA was performed, but no experience differences were found in B′ items.

DISCUSSION

In deciding behavior, a significant experience difference was seen between the one-year group and the two-to-five-year group. We think one reason for this may be risk perception. In this study, no experience difference was seen in risk perception. However, the two-to-five-year group's A score was the lowest of all three groups. The lack of a significant experience difference may be due to the small sample size. This study had 49 participants, but Adachi, Usui, Matsumoto, & Aoki (2008) surveyed 200 nurses who had worked less than one year to more than forty years to investigate risk perception of unsafe behavior. In their study, the one-to-three-year group had the lowest risk perception among the groups, and the one-to-three-year group exhibited significantly more risky behavior than the one-year group, seven-to-nine-year group, or thirty-to-thirty four-year group. In this study, there was no experience difference in hazard perception. It was thus suggested

Table 1. Question (B) d' and β every group.

	1-year	2-to-5-year	Over-15-year
d'	1.91	1.72	1.85
β	2.38	2.48	1.97

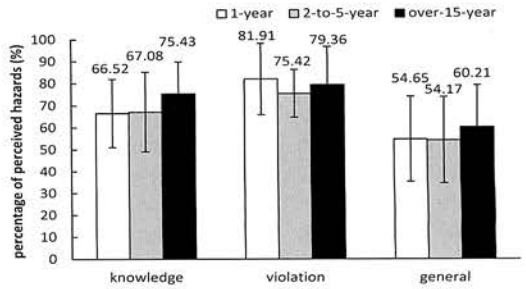

Fig. 3. Question (B) averaged percentages of perceived hazards for every group.

that middle-career nurses have normal ability to perceive hazards but that they may have poor risk perception so that they choose risky behavior.

Middle-career nurses assess unsafe behavior as more profitable than other nurses (Adachi et al., 2008) or they consider reporting incidents as less helpful and tend to think that postgraduate safety education is unnecessary (Usui, Wada, Aoki, & Tachikake, 2005). This study suggests one factor of middle-career nurse's risk-taking tendency. As a background factor determining middle-career nurse's risk perception, it may be that they are too confident in their own ability or have become accustomed to working with risk. This should be examined in the future with more participants having various experience spans. In addition, no significant difference in hazard perception was observed in experience difference, but it may be possible for hazards to be classified as formal or informal.

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