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The learning experiences of student nurses in pediatric medication management: A qualitative study☆

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SUMMARY

Background: Traditionally, the 'five rights' (right patient, right route, right drug, right time, and right dose) principle is taught to be practiced during every medication administration process. Nursing educators use this principle to evaluate student performance. However, health care unit factors and education system characteristics that can contribute to student errors should not be underestimated. Students often felt stressed when medicating children during clinical practicum. The voices of these students are rarely represented.
Objective: To understand students' experiences and perceptions of medication administration during their pediatric clinical practicum.
Design: A descriptive qualitative study design was adopted.
Setting: A university in Northern Taiwan.
Participants: A total of 34 undergraduate students who had completed a pediatric clinical practicum participated in a one-on-one interview.
Methods: Each student was interviewed according to a semi-structured interview guide and was encouraged to disclose individual feelings and thoughts toward their experiences in pediatric medication administration.
Results: Eight themes emerged. The findings suggest that to decrease students' anxiety and increase their competence, pediatric instructors should improve their teaching strategies to better prepare students for clinical training. Providing self-directed learning activities and resources to improve students' familiarity with medication and medication safety knowledge is necessary. Instructors should provide students with a secure environment to discuss their medication errors.
Conclusion: The 'nine rights' should be taught in fundamental nursing courses to enhance students' awareness during the medication administration process, and students should continue to practice the 'nine rights' in later pediatric clinical courses. Equal importance should be given to system failures that impact patient safety.

Introduction

Medication safety is an important component of patient safety, an indicator of health care quality (Mulready-Shick et al., 2009). Compared with adult patients, medication errors with the potential to cause harm are more likely to occur in pediatric patients (Fortescue et al., 2003). For example, pediatric forms of medication are not always available, and individual drug dosage is calculated based on the child's weight, which make medicating children prone to errors (Turkoski, 2007). Moreover, pediatric patients range from birth through adolescence, and each age group has unique medication considerations (Ford et al., 2010); young and critically ill children have poor physiologic reserves to manage medication errors (Fortescue et al., 2003). Thus, safely medicating children is an important learning goal in a nursing student's pediatric clinical practicum.

Background

The medication management process includes a number of phases: prescribing, transcribing, dispensing, administering, and monitoring; each phase involves multiple members of the health care team (Harding and Petrick, 2008). Although medication administration is predominantly a nursing responsibility (Pentin and Smith, 2006), errors may also occur as a consequence of errors in other points of the medication process, such as procurement, storage, prescribing, ordering, and transcribing (Sauberan et al., 2010). The order of this process often places nurses in a position as the final checkpoint for ensuring safe medication delivery (Harding and Petrick, 2008). Therefore, nurses must be experts of the medication management process.

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Nursing students develop the ability to integrate pharmacology knowledge into practice through medication administration in the clinical setting (Lim and Honey, 2006). Traditionally, the 'five rights' (right patient, right route, right drug, right time, and right dose) principle is taught to be practiced during every medication administration process. Nursing educators use this principle to evaluate student performance (Dennison, 2007). Various sources of medication errors by student nurses, such as poorly written orders, dispensing errors, and calculation errors, have been identified in previous studies (Harding and Petrick, 2008; Valdez et al., 2013). However, health care unit factors and education system characteristics that can contribute to student errors should not be underestimated (Gregory et al., 2007).

In one study, students often felt stressed when medicating children during clinical practicum because to practice and learn in a real-life situation does not allow for errors (Tsai and Huang, 2005). Koohestani et al. (2008) described the high rate of medication errors among students, and the fact that errors may occur more frequently than suspected. Most studies focused on medication error analysis (Fortescue et al., 2003; Harding and Petrick, 2008), the voices of the nursing students are rarely represented. This study, therefore, aimed to understand students' experiences and perceptions of medication administration during their pediatric clinical practicum. The results may facilitate improvements in the teaching approach for medication administration in clinical settings.

Methods

Design

A descriptive qualitative study design was adopted to explore the experiences of baccalaureate nursing students in medication administration and factors influencing students' accuracy during their pediatric clinical practicum.

Participants

In our undergraduate nursing program, students often were assigned to different hospitals to have different practical experiences associated with different courses. Every instructor teaches a group of seven students. During the pediatric clinical course, drugs are checked and administered by students under the supervision and guidance of instructors and sometimes qualified staff.

Purposive sampling was used. The inclusion criteria for the participants were that they 1) were undergraduate nursing students and 2) had completed a five-week (three days per week) pediatric clinical practicum in the past semester. Students were invited to participate in the study; non-participation did not affect their practicum score. Thirty-four students participated in the investigation.

Data Collection

The study was approved by the university's Ethical Committee Board. The research purpose was fully explained by the interviewer, and written informed consent was obtained prior to the interview. Participants were free to withdraw from the study at any time. The three interviewers did not teach the students. These three interviewers were master's prepared nursing instructors and all had qualitative interview training or had participated in previous qualitative research. The principal investigator and the interviewers had discussions before the interviews and after the first data were transcribed verbatim to reach consistency and maintain the quality of the interviews. Each student was interviewed according to a semi-structured interview guide and was encouraged to disclose individual feelings and thoughts toward their experiences in pediatric medication administration. After completion of the interview, which lasted approximately one hour on campus, the students received a gift for their participation.

Interviews were digital-audio recorded with permission from the participants, and all data were transcribed verbatim. The interviewer also checked every verbatim transcription with the correspondent tape to assure accuracy. A number was allocated consecutively to each participant. Interviews were continued until data saturation. The participants' quotes used pseudonyms instead of their real names in this study.

Rigor

The trustworthiness of the study was established according to the method of Lincoln and Guba (1985). Incomplete or inconsistent findings were identified for clarification and further discussion. Data were repeatedly checked and reviewed by the investigators. Member checks and member validation were applied to ensure credibility. Two participants were asked to read the results to verify their accuracy.

Data Analysis

Narrative data were analyzed using content analysis and by categorizing the students' comments into themes (Graneheim and Lundman, 2004). Open coding began after the first interview was transcribed. Each author compared the codes, and formed the categories based on the relationships among the texts. The authors then reached a consensus and generated themes of the students' experiences.

Results

All 34 participants were female. The age of the participants ranged from 20 to 24 years. Every student had prior medication administration experience in medical–surgical nursing courses before taking pediatric clinical courses. They did not have previous work experiences in a healthcare setting. The eight themes the students explored during medication management are presented in the following sections:

Illegible Orders Were Dangerous

Handwritten prescriptions are still used in several Taiwanese hospitals. Thus, some prescriptions were illegible or transcription errors occurred. These problems could present a risk for medication errors, such as misunderstanding the handwriting of prescribers or assuming a senior nurse had checked a prescription when, in fact, he/she had not. Student PJ said,

> "Acetaminophen has several types of dosages. A staff nurse didn't write the type of dosage in the medication administration record. The types of dosages include syrup (160 mg/5 ml), chewable tablets (80 mg/tablet), or adult doses (500 mg/tablet). I rechecked it. The transcription omission almost made me select the wrong type of dosage."

Some hospitals use electronic nursing information systems. Students reported that having computers to access databases was useful for clarifying the conditions of clients, and they used the informatics system to assist in dispensing medications. However, potential errors may still occur. Student RC said, "The doctor may key in the order wrong, so we have to be alert and check with the staff."

A Different Clinical Setting Is Confusing

Because students were assigned to different hospitals for various nursing courses, they encountered different devices, facilities, routines, and management systems. Inexperience and unfamiliarity made the students confused and increased the chance of making errors. Student AJ said,

> "My patient had two medications, one was q6h, the other one was qid. I prepared the inhalation medication for 11 am at 10 am.