



Knowledge, Attitude and Ethical Sensitivity of Students of Nursing and Midwifery about Medication Application

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Abstract Nursing and midwifery professions require ethically sensitive approaches because they involve various applications on human beings, including medication applications. However, it is important to undertake initiatives based on scientific evidence within the framework of rules and specific procedures. To review the situation of medication applications during the training of nurses and midwives. This was a questionnaire study conducted on nursing and midwifery students in Kütahya Health Science University, Health Science Faculty. This study was conducted during 2014-2015 academic year on 345 nursing and midwifery students at the 2nd and 4th grade. The questionnaire items of this study were based on the Hospital Service Quality Standards Guide (HSQSG). Of the students (87% females), 17% were in the midwifery department at the 2nd grade and 23% were at the 4th grade and 26% were in the nursing department at the 2nd grade and 34% were at the 4th grade.

While 10% of the students read the whole HSQSG, 78% did not read, and the remaining 12% just skimmed it through. There was no difference between groups regarding reading the HSQSG ($p>0.05$). Gender of the students, their accommodation, reading the HSQSG, and the answers to the questions were compared and it was seen that they did not affect the answers. The students are not sufficient in patient safety procedure, correct medication storage, and procedures for administration of medicines brought by patients. The level of knowledge of the students increased as the class levels increased.

Keywords Nursing, midwifery, knowledge, attitude, medication application

Introduction

Nursing and midwifery professions require ethically sensitive approaches because they involve various applications on human beings. The most important of these applications is medication applications.

When medication applications are carried out, it is important to undertake initiatives based on scientific evidence within the framework of rules and specific procedures. The primary principles of medical ethics are "not to harm" and "to be helpful" [1]. Errors that occur during the health service delivery process cause harm to health workers and patients [2]. Medication safety should be given carefully in the education of health-field students. Error to comply with basic standards and to follow relevant guidelines in medication preparation and management is the most common reason for nurses to be sued. The six issues identified as violations of medication errors are: the right patient, the right medication, the correct dose, the right path, the right time and the right technique [3]. Our study was planned with the aim of evaluation the knowledge, attitude and ethical sensitivity of medication applications during the education of students of nursing and midwifery.



Materials and Methods

This study was carried out during 2014-2015 academic year using a questionnaire on total 345 students of nursing and midwifery in Kütahya Health Science University, Health Science Faculty. School of Health who had at 2nd grade and at 4th grade. Consent for the study was obtained from the Science Ethics Committee of XXX University. Informed consent was obtained from the participants. The questionnaire items of this study were based on the expressions in medication application procedure in the Clinics subtitle under the heading of Health Services Administration of Hospital Service Quality Standards Guide (HSQSG) published by the XXX Ministry of Health, General Directorate of Healthcare Services, Department of Performance Management Quality Development. The following 35 items with “Agree-Undecided-Disagree” choices were asked to the students. This survey name is “Knowledge, attitude and ethical sensitivity of students of nursery and midwifery about medication application”. Frequency, mean, standard deviation, Chi-square, Kruskal-Wallis, eta coefficient and Cramer's V Coefficient were used in statistical analyzes.

Results and Discussion

Total 345 students participated in the study. 17% of them were in the midwifery department 2nd class and 23% were 4th class students, while 26% were in the nursing department 2nd class and 34% were 4th class students.

The age of the students ranges from 19 to 25 years and the average age is approximately 20 years. While 52 of the 118 nursing 2nd class students (44.1%), 44 (48.9%) of the 90 nursing 4th class students and 24 of the 59 midwifery 2nd class students (40.7%) were 20 years old, 21 (26.9%) of the 78 midwifery 4th class students were 21 years old.

The participants were 13% male and 87% female. Of the 118 nursing 2nd class students, 97 (82.2%) were female and of the 90 nursing 4th class students, 81 (90.0%) were female. There was a statistically significant difference between the groups regarding the gender of the students ($p: 0.007$). This difference arose from the fact that all midwifery students were female.

While half of the participant students stayed in dormitory, the other half stayed at home. While 59 (50.0%) out of 118 nursing 2nd class students, 49 (54.4%) out of 90 nursing 4th class students, 34 (57.6%) out of 59 midwifery 2nd class students stayed in dormitory, 49 (62.8%) out of 78 midwifery 4th class students stayed at home. There was no significant difference between the groups regarding the accommodation of the students ($p: 0.066$).

While 10% of the students read the whole HSQSG, 78% did not read it and the remaining 12% just skimmed it through. 103 out of 118 nursing 2nd class students, 75 out of 90 nursing 4th class students, 39 out of 59 midwifery 2nd class students and 51 out of 78 midwifery 4th class students did not read the HSQSG.

While there was a weak correlation between the age and the reading of the HSQSG in the other groups except midwifery 2nd class students, the relationship was at medium level (50.8%) level in the midwifery 2nd class students. There was a weak correlation between the age of 345 students included in the study and the reading of the HSQSG at 30.9% (Eta coefficient).(Table 1).

Table 1: Analysis of the relation between the case of reading the Hospital Service Quality Standards Guide in the student groups and their ages using eta coefficient

	Eta Coefficient
Nursing students at 2 nd class	0.309
Midwifery students at 2 nd class	0.508
Midwifery students at 4 th class	0.325
Nursing students at 4 th class	0.329

When the correlation level between gender and the reading of the HSQSG in the student groups was analyzed using Cramer's V coefficient, it was found to be 0.051 in nursing 2nd class students and 0.081 in nursing 4th class students. The relationship between the reading of the HSQSG in student groups and their gender was negligible. There was a negligibly low correlation between the gender of the 345 students included in the study and the reading of the guidebook at 12.9% (Cramer's V). The case of reading the HSQSG did not change according to the gender of the students.



For each group, when the relationship between the accommodation of the students and the reading of the HSQSG was evaluated with Cramer's V coefficient. Cramer's V coefficient was found to be 0.173 for nursing 2nd class students, 0.126 for nursing 4th class students, 0.112 for midwifery 2nd class students and 0.132 for midwifery 4th class students. For each group there was a negligibly low correlation between the students' accommodation and the reading of the guidebook. There was a negligibly low correlation between the accommodation of the 345 students included in the study and the reading of the HSQSG at (Cramer's V) 13.3%. The case of reading the HSQSG did not change depending on the students' accommodation.

According to the findings, when the answers of all 345 students to each question in the questionnaire were examined statistically and mean of each question was analyzed, it was seen that the questions took values close to each other. It was also determined that the percentage of "agree" was the greatest.

"The number of drug application errors increased when the drug application standards were not followed in the clinics", the highest score average value was obtained from other questions. "Medications brought in by the patient should be applied by the care professional" the lowest value was obtained from other questions.

Dosages of urgent pediatric medications, the treatment plan and the handover records of green and red prescription medications high score average value were obtained from other questions. Storage of medications that are similar should be on different shelves the low value was obtained from other questions. (Table 2).

Table 2: Mean and standard deviation of the highest and lowest value medical applications questions regarding the answers of the students

Questions	Mean±SD
In hospital services, medication application errors increase when the standards for medication application in clinics are not followed	2.97±0.192
Dosages of urgent pediatric medications should be regulated, listed and lists should be in relevant departments	2.96±0.255
The treatment plan should include the exact name of the medication, the time and dose of administration, the mode of administration and administration procedure	2.96±0.266
The handover records of green and red prescription medications should contain the number of and to which patient medications are applied, the date of use, the number of medications delivered to whom, the signatures of the deliverer and the recipient	2.95±0.254
Storage of medications that are similar in writing, reading and packaging should be on different shelves	2.67±0.700
Medications brought in by the patient should be applied by the care professional	2.64±0.654

SD, standard deviation

The answers given by the students to medical drug procedures questions, according to their classes were compared with the Kruskal-Wallis. Questions to medication procedure brought by the patient (p:0.005), medications should be administered by care personnel (p:0.006), spelling of drug names procedure (p:0.021), similar drug procedure (p:0.064), pediatric drugs procedure (p:0.001), green and red prescription drugs procedure (p:0.040), serious and unexpected adverse reaction procedure (p:0.011) and verbal request procedure (p:0.046), that I agree with to these that the percentage of the answer is found to be higher in the 4th grade students of midwifery.

Thermostats for refrigerators (p:0.007), regulation of safe application of medicines (p:0.014), procedure of identification of the patient in drug containers (p:0.026), drug administration rules of students (p:0.040), emergency pediatric drug listing procedure (p:0.031); "I agree" answers is found to be higher in the 4th grade students of nursing.

The gender of the students, their accommodation, the case of reading the HSQSG and the answers they gave to the questions in the questionnaire were statistically compared and it was seen that they did not affect the answers given to the questions.



The answers given by the students to ethic sensitivity questions, according to their classes were compared with the Kruskal-Wallis. Questions to providing quality standards for medication applications in clinics in hospital services is an ethical sensitivity ($p:0.012$), it is important to comply with the standards set by service quality standards to avoid possible medication administration errors that may arise during the verbal request ($p:0.000$), serious damage to physician, patient, nurse, midwife and country's economy with medication application errors makes those who have done the error responsible in terms of justice principle of ethics ($p:0.015$); "I agree" answers is found to be higher in the 4th grade students of midwifery. Drug application mistakes cause patient safety ($p:0.000$); "I agree" answers is found to be higher in the 4th grade students of nursing (Table 3).

Table 3: Evaluation of mean and standard deviation of the answers of the participants to medication application in ethical aspect

Items	N	Mean±SD
Providing quality standards for medication applications in clinics in hospital services is an ethical sensitivity	345	2.94±0.275
In hospital services, medication application errors increase when the standards for medication application in clinics are not followed	345	2.97±0.192
Medication administration errors damage patient safety	345	2.95±0.270
Safe medication administration is an indispensable aspect of patient rights	345	2.93±0.307
Rational medication administration is related to the utility principle of medical ethics principles	345	2.92±0.296
Preventing errors in medication applications is about not harming principle of medical ethics	345	2.92±0.331
It is important to comply with the standards set by service quality standards to avoid possible medication administration errors that may arise during the verbal request	345	2.92±0.331
Serious damage to physician, patient, nurse, midwife and country's economy with medication application errors makes those who have done the error responsible in terms of justice principle of ethics	345	2.88±0.407

SD, standard deviation

Medication therapy is the first of the current medical treatment methods [4]. Medications, obtained from various sources – e.g. animal, herbal, mineral and synthetic- are used as diagnostic, protective and therapeutic agents. It is essential to use at the right time, in the required amount and form. When these concepts are not followed, it can create health problems [5]. When the concept of medication use is well managed, but otherwise, it may cause harm to human health, health work force and the economy [6]. In the health organization, nurses and midwives play an important role as an indispensable element in this concept. Regarding medication use, fulfilment of such functions as preparation of medicines, application in a safe manner, registration, observation of patient reactions, and possessing sufficient knowledge level are among the requirements of the nursing profession. Medication error is the most common type of errors affecting patient safety as well as the most common type of error among medical errors [7]. Medication Error is defined as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer" by The National Coordinating Council for Medication Error Reporting and Prevention in the United States [7-11]. It was determined in our study that the medications brought by the patient should be applied by the nurse and that the students were insensitive to storage of the medications similar in writing, reading and packaging to each other on separate shelves and therefore theoretical and practical training on the matter should be arranged. Çelik [12]. stated that the qualification for healthcare stakeholders; that the authority to prescribe, prepare and give medications belongs to pharmacists while the authority to apply them to patients belongs to nurses and midwives in hospitals. Uzun [13]. pointed out that individuals lose their lives by being exposed to preventable medication errors due to



confusion arising from similar drug names; and that while some of the errors are nurse errors, medication errors also occur when new medicines are prescribed during admission or discharge operations of patients. Çırpı [14] pointed out the medication application errors in the first place (47%) among the professional errors encountered by the nurses in practice. Gökdoğan [15] stated that nurses in Turkey were more likely to make order-medication errors. Uzuntarla *et al* [16] found that the common medication application error was wrong timing (47.8%). McMullan *et al.* [17] found that more than half of the students failed in the medication assessment test they applied to the students and emphasized that students should be trained through repeated practical training. In their study, Gregory *et al* [18] reported that they encountered 154 poorly attended care practices in students' clinical practices arising from 37 students and 56% of them were medication errors. In order to avoid medication errors, Page *et al* [19] recommended that students be provided with workshop training at sufficient level in a multidisciplinary approach about the interpretation of prescriptions, medication calculation, allergic medication procedure. Wolf *et al* [20] stated that the majority of students' medication errors were due to wrong dose and emphasize the importance of educating students in simulation training laboratories. This information was similar to our study findings.

In our study, it was determined that the level of students' reading the HSQSG was not sufficient and that their status of reading the HSQSG did not change according to their class, age, gender and accommodation. This finding suggests that the education of patient safety in school may not have been implemented by the training methods and techniques that the student could understand and that adequate learning environment may not have been established in clinical practice. Akyüz [21] determined that during clinical teaching, 66.1% of the nurses stated that course instructors should be responsible and 23.6% of them stated that they themselves should be responsible for their interns and drew attention to insensitivity of the nurses to the students' training in clinical education. Vural [22] stated that nurses had pharmacology knowledge at moderate level. Tutuk [23] determined that the mean of communication skills and empathic tendency points perceived by nursing students were moderate and that the mean of the points increased as the number of years of education increased and emphasized that education should be provided. Banning [24] emphasized the importance of education for students to learn the medication application procedure well and stated that importance should be given to increasing knowledge levels. Attree [25] emphasized that both theoretical and practical training in patient safety were not sufficient and required enforcement and added that trainers should be more sensitive to this issue. Kazaoka [26] found that nurses had a low level of awareness in explaining medication procedures to students. Feng [27] found that patient safety culture in nursing: a dimensional concept analysis. These are system, personal, task-associated and interaction. It is suggested in nursing educators should make arrangements in education on this subject, nursing researchers should carry out advanced researches. This information is consistent with our findings.

In this study, it was seen that the gender of the students, where they stayed (accommodation), and the case of reading the HSQSG did not affect their knowledge of the medication application procedure. Similarly, in their research, Tutuk [23] found no relationship between students' perceived communication skills and empathic tendency average scores and their ages. Uzuntarla [16]. stated that there were differences between health personnel in rational medication use and that this might result from personality traits. In their study, Gregory [18] indicated that male students were involved more in patient care in such a way that damages patient safety. This information is not compatible with our findings.

It was determined in our study that the students were sensitive and knowledgeable about the importance of the use of right medication, that medication application errors will increase when medication application standards aren't observed in hospital services and clinics, the urgent and pediatric drug procedures, that the treatment plan should include the exact name of the medication, the time of administration, the dose, the way of application and the administration of the medication, and medications subject to green and red prescription. And it was seen that the level of knowledge of the students increased as the class levels increased. In their study, Aştı [28] stated that nurses' knowledge level of pharmacology was good. Uzun [9] stated that because the majority of medication administration errors occur in the application phase, medication administration and its importance were emphasized in nursing education curricula. Uzuntarla [16] found that when needed, nurses could get access to the current pharmacology information through medication reference books (*Vademecum* etc.) at the rate of 70.1%. They also found that nurses



were trained in ways to administer medication, checking their expiration date, and medications to be used on patients. They pointed out that it is possible to increase the level of pharmacological knowledge through education, that professional preparation should be structured in a complete way by emphasizing the importance of pharmacology courses especially in the period of study, and that this will be reflected positively on the clinical work. In their study, Uzun [29] stated that nursing students were sensitive to the fact that the first purpose of keeping records was to ensure the continuity of patient care. This information is consistent with our findings.

In our study, it was determined that students gave importance to patient safety medication applications in terms of patient rights in ethical aspect and in terms of medication applications in ethical relation aspect. Zencirci [3] stated that each relationship that health workers made in the context of patient and professional responsibilities was an ethical relationship and that every relationship in which people live in action and value problems were in question was expressed as an ethical relationship. It is important to take medication errors, considered in the framework of "do not harm" principle of medical ethics, into account in clinics in the context that it may give rise to ethical relation problem. According to Türkmen [10] and Aydın [2], consistent with our findings, there was a patient safety problem in the developing countries, medical errors were due to inadequate organizational structure, technical infrastructure and human power rather than individuals, and it was one of the basic patients' rights to be protected from neglect and harmful application in a safe environment. Uzuntarla [16] associated doing medication questioning and having adverse reaction reports before drug administration with personal characteristics such as personal relationships, extroversion, and openness to personality.

The health system, planned in line with the principle of "do not harm" which takes place in medical ethics, should give priority to patient safety first. However, errors in health care services and education processes cause harm to health care members and patients [2]. It is possible to avoid errors arising from medication applications. For this purpose, the quality of education should be increased and undergraduate and graduate education should be promoted to train more qualified and competent nurses and midwives [30].

Conclusion

It has been concluded as a result of our work that the students are not sufficient in the patient safety procedure, the correct medication storage and the procedures for the administration of the medicines brought by the patients and thus should be made more informed. It was seen that the level of knowledge of the students increased as the class levels increased. It has also been shown that further research is needed to evaluate medication safety should be made. As regards medication safety, students, most of whose training occurs in hospitals, should be educated both in pharmacology and in an ethically competent manner and ensuring patient safety and avoiding medication administration errors in the course of their practices in the hospitals are among the things that we should pay attention to.

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