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Document

Trends and Issues Teaching Medical Safety in Basic Nursing Curriculum in Japan

—— An Analysis of Seventeen Research Articles on Nursing Teachers and Clinical Instructors ——

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Abstract

The purpose of this study was to conduct a narrative review on *Medical Safety* in basic nursing education for teachers and clinical instructors by reviewing a variety of articles related to medical safety education. An online article search was conducted in the Central Journal of Medical Science using the keywords "Medical Safety" and "Nursing Education". A total of seventeen references were extracted that involved teachers and clinical instructors. These seventeen articles were categorized into five main topics: "Medical Safety Education Awareness", "Medical Accident Prevention Measures", "Instructional & Emotional Support for Nursing Students after an Adverse Event", "Instructor's Awareness for Practical Training", "Basic Nursing Curriculum and Overall System".
Medical safety-related courses included in the Japanese nursing curriculum of the surveyed universities, junior colleges and vocational schools in Japan averaged 1.7 credits. This study examined the practices used to prevent student adverse events in clinical training and the involvement of educational faculty members and clinical instructors after such an incident occurred. In order to enhance the teaching ability of both educational faculty members and clinical instructors and to improve the training environment, it is important to strengthen the cooperation and collaboration between educational institutions and training facilities.

Key words: basic nursing education, medical safety education, nursing teachers, clinical instructors, collaboration

Introduction

In 2009, the regulations for designation of Training Schools for Public Health Nurses, Midwives and Nurses (hereinafter referred to as the "Regulations") were revised, establishing "Integrated Nursing Practice" as an integrated field and clearly stipulates that emphasis be placed on learning the basics of medical safety. In 2011, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Health, Labor and Welfare (MHLW) proposed a "Provide a Safe Care Environment" act. Ten years have passed since three graduation goals related to medical safety and infection prevention were indicated. There is a

growing focus on medical safety and patient-centered care in Japan, so there is promising potential for the advancement in nursing education and training in the future.

The lead author is in charge of integrated nursing in the field of basic nursing and teaches a course on medical safety. Due to the impact of the Covid-19 pandemic, students are graduating with very limited exposure to learning about medical safety in a clinical setting. It concluded the need to re-evaluate the educational system that links the knowledge and skills of medical safety acquired in a clinical setting with the medical safety education in the basic nursing curriculum, including the teacher's and clinical instructor's viewpoint, as well as the course content and learning environment (Nakano et al., 2021).

Three years have passed since the outbreak of the pandemic, and as of December 2022, there are still no signs of it being controlled. In Japan, it is still having a great impact on people's lives. The same is true in the field of basic nursing education where teachers are striving to achieve their learning objectives by implementing ICT (Information and Communications Technology) and revamping the current educational curriculum. As a result, MEXT authorized on-campus training as a substitute to clinical training in hospitals by allowing educational institutions to devise various ways to simulate a hospital setting. In 2021, MEXT met with experts and prepared a report on how to maintain and possibly improve the quality of the clinical training program by changing the nursing degree requirements. This new curriculum was implemented in April, 2022.

The purpose of this study was to conduct a narrative review of the *Medical Safety* courses that the students, teachers and clinical instructors undertake as part of their basic nursing education.

Terminology (Definition of Terms)

Teachers: Teachers who are qualified nurses and teach nursing at universities, colleges, and vocational schools

Clinical Instructors: Nurses at hospitals, clinics, midwifery centers, home nursing stations, facilities for the elderly, community health centers, and other training facilities where on-site training takes place

Clinical training: refers to on-site training at hospitals, homes, walk-in clinics, nursing homes, government health centers and nursery schools

Nursing students: students attending university, junior colleges, and vocational schools

Research Methodology

1. Search Method and Selection of Articles

Accessing the database of the Web version of "ICHUSHI" a Japanese medical journal, the search was limited to original articles within the past 10 years using the keywords "medical safety" and "nursing education" and extracted 292 articles (as of November 30, 2022). The final selection was based on teachers and clinical instructors who focused their training on basic nursing education and medical safety. As a result, 17 articles were selected.

2. Method of Analysis

We created a review sheet for each article that contained the following details: author(s), year of publication, purpose, number of subjects, data collection & analysis method. Based on these criteria, we reviewed the educational curriculum for medical safety, as well as the teaching ability of the teachers and clinical instructors.

Results

The analytical results of the 17 article reviews are listed in Table 1. Note: Publication dates: six from 2020–2021, seven from 2016–2019, four from 2012–2015. Research format: 12 questionnaires, 2 interviews, and 3 analysis reports (guidance and accident reports). Subjects: 11 teachers, 4 clinical instructors, 4 nursing students, and 4 others. Main topics: 1) Medical Safety Education Awareness, 2) Medical Accident Prevention Measures, 3) Instructional & Emotional Support for Nursing Students after an Incident, 4) Instructors` Awareness for Practical Training, 5) Basic Nursing Education Curriculum and Overall System.

1. Medical Safety Education Awareness

Sumai et al. (2016) identified factors influencing the perceptions and risk sensitivity of 222 teachers from 24 vocational schools toward medical safety education. The largest number of subjects were 136 (61.5%) with more than 10 years of clinical experience and 98 (44.3%) with more than 10 years of teaching experience. 20 (9.0%) of the subjects were in charge of medical safety courses and 137 (62.0%) had not attended any medical safety training. Faculty rank influenced the degree of which medical safety measures were utilized. Teachers and clinical instructors who

Table 1 List of 17 articles

	Author (year of publication)	Research Objectives	Research Methods (1) Number of subjects (2) Data collection method (3) Analysis method
1	Sumai, et al. (2016)	To identify factors that influence teachers' perceptions of risk sensitivity in medical safety education.	(1) 262 teachers in 24 vocational schools (two and three-year programs) in one prefecture (2) Questionnaire survey (3) Statistical analysis
2	Sumai. (2013)	To compare the self-efficacy of faculty teachers with experience teaching medical safety courses with those teachers who have no experience teaching medical safety courses.	(1) 262 teachers in 24 vocational schools (two and three-year programs) in one prefecture (2) Questionnaire survey (3) Statistical analysis
3	Onishi, et al. (2020)	To identify the level of injection skills and tasks students should acquire in basic nursing education.	(1) 208 teachers in three-year vocational schools and 355 new nurse trainers from hospitals with more than 200 beds (2) Questionnaire survey (3) Statistical analysis
4	Yamaoka, et al. (2020)	To identify the specific situations in which teachers can avoid adverse events from occurring with student training.	(1) 4 teachers in one university (2) Description of danger avoidance situations (3) Content analysis
5	Isene, et al. (2019)	To clarify the measures taken by clinical instructors to minimize adverse events from occurring in the future.	(1) 1,309 clinical instructors at hospitals nationwide (2) Questionnaire survey (3) Content analysis (secondary analysis)
6	Sadahiro, et al. (2015)	To clarify the measures taken by teachers to minimize adverse events from occurring in the future.	(1) 741 teachers in basic nursing education programs nationwide (2) Questionnaire survey (3) Content analysis
7	Tokuchin, et al. (2019)	To identify and resolve issues dealing with faculty guidance to minimize student adverse events from occurring in the future.	(1) (2) Description of "post-accident issues" in the incident guidance report prepared by teachers in one junior college (3) Content analysis
8	Shio, et al. (2016)	To identify the method of guidance by clinical instructors of students who have experienced adverse events.	(1) 7 students who had an adverse event experience at one university and 5 clinical instructors with post-incident involvement with students (2) Semi-structured interviewing (3) Grounded theory
9	Komura, et al. (2021)	To clarify the student characteristics that cause an adverse event from occurring and the relationship between the teacher and student concerning risk sensitivity.	(1) 1,348 final year students in 22 universities and vocational schools (2) Questionnaire survey (3) Content analysis and statistical analysis
10	Inoue, et al. (2021)	To clarify students' attitudes toward practical training, and the sense of collaboration among clinical instructors and teachers.	(1) 61 junior college third-year students, 60 clinical instructers at 2 hospitals, 66 teachers in universities, junior colleges, and vocational schools (2) Questionnaire survey (3) Statistical analysis, KJ method to classify descriptive content
11	Takashita, et al. (2013)	To clarify the perceptions of both students and clinical instructors during integrated practice shadowing.	(1) 74 third-year students and 100 clinical instructers (2) Questionnaire survey (3) Simple tabulation and classification of statements
12	Nakao, et al. (2012)	To clarify how ward nurses can better instruct students during clinical training.	(1) 9 nurses in 1 ward (2) Semi-structured interviewing (3) Content analysis
13	Yamaguchi, et al. (2021)	To clarify the content of the current medical safety education curriculum.	(1) 222 three-year vocational schools in the Kanto and Kinki regions (2) Questionnaire survey (3) Statistical analysis, content analysis
14	Hasebe, et al. (2016)	To clarify the quality and lecture time of medical safety education courses for medical students.	(1) Medical and dental schools of 42 national universities in Japan (2) Questionnaire survey (3) Statistical analysis of medical, dental, and nursing students, inter-university comparison
15	Echizen, et al. (2017)	To clarify teachers' perceptions of the need for enhanced basic nursing educational content and the reasons that contribute to this need.	(1) 1,132 teachers in 24 universities and 66 vocational schools (2) Questionnaire survey (3) Statistical analysis
16	Endo, et al. (2020)	To clarify the content and methods of the "teacher training" program in a hospital setting.	(1) 200 teachers in vocational schools nationwide (2) Questionnaire survey (3) Simple tabulation, collection of similar content
17	Igarashi, et al. (2017)	To reveal the number of adverse events that occurred in one specific vocational school.	(1) (2) "incident/accident report" reports for 2 years written by faculty and administrative staff in one vocational school (3) Classification of report contents

attended a medical safety workshop were more confident in their ability to respond to accidents than those who had not (137). As for the risk sensitivities of the teachers and clinical instructors, the following factors were identified: "Implementing Medical Safety Measures", "Attitude Toward Students After an Accident", "Confidence Level in Handling an Accident", "Utilizing Medical Safety Knowledge". Young teachers in their 20s and 30s who had been teaching for one to three years, and had not yet attended a risk manager training course on medical safety were factors that lowered their awareness and ability to teach risk management in medical safety education.

Sumai (2013) compared the self-efficacy of two groups of teachers: 1. those who were in charge of medical safety courses and 2. those who were not. The teachers in charge of medical safety education had more than 10 years of experience in both nursing and education and attended more safety-related training sessions than their colleagues. Both groups of teachers were motivated but surprisingly both lacked confidence in teaching medical safety education. However, those in charge of medical safety education were more capable of dealing with the nursing students.

Onishi et al. (2020) surveyed teachers at vocational schools and the training staff of new nurses at hospitals nationwide regarding injection techniques that nursing students should learn. Both teachers and training staff identified the following items that nursing students should learn: washing hands at appropriate times, maintaining a clean environment, disinfecting injection sites, and preventing medication errors. Comparing the teachers and training staff, there were differences in 66 out of 90 items on the survey. There was also a difference in the perceived attitude among students regarding the needle injection techniques between teachers and training staff.

2. Medical Accident Prevention Measures

Yamaoka et al. (2020) found three post-operative procedures; hygiene care, mobility assistance, and drug administration where malpractice procedures could be predicted and avoided based on recall of 7 past situations. The researchers noted the need for students to create a patient care plan and be able to explain the risks and rationale of the plan to the patient. In addition, the student must be aware of the potential risk their conduct could pose on their patient before initiating care. In the case of post-operative hygiene management, the students must understand the specific protocols and considerations when simulation planning. The following is an outline of the teacher's patient care plan: *For post-operative mobility assistance*: — Make sure student can perform the procedures involved in assisting the patient reposition or get out of bed before initiating care, — Have student make notes of their interaction with the patient. *After performing post-operative mobility assistance*. — Have student take note of important staff and patient interactions, — Have student report their Patient Care Plan to their supervisor before end of shift. *For drug administration*: — Explain to the student in advance that acute post-operative care often involves a sudden change of medication, — Have student check the prescribed medicine daily, — Make sure student knows how to handle the medication, — Confirms patient can safely take the prescribed medication.

Isene et al. (2019) presented the following eight specific measures taken by clinical instructors to prevent adverse events from occurring during training. 1) Familiarize students with medical accidents in wards and nursing practices to prevent them, and provide learning opportunities through practical training, 2) Inform students of the rules and strictly implement them to prevent an adverse event from occurring, 3) Assess each students' level and correct any mistakes prior to allowing them to provide patient care, 4) Give top priority to the safety and comfort of the patient during student training, 5) Have good communication and collaboration among clinical instructors and nursing teacher, 6) Coordinate work-zone assignments and student action plans, 7) Allow students to make judgments on their own without placing too much trust in them, 8) Be sensitive to students' feelings during training and enable them to request assistance without hesitation.

Sadahiro et al. (2015) also presented the following eight measures taken by teachers to prevent adverse events among students in clinical practice: 1) Thorough preparation prior to start of training, 2) Close communication with the parties concerned for safety assurance, 3) Check and modify safety assurance teaching methods as necessary, 4) Check preparedness and modify student plans as necessary, 5) Increase student participation and minimize risk of adverse events from occurring, 6) Collaboration among nursing teachers and clinical instructors to assure safety during training, 7) Provide learning opportunities to ensure safety, 8) Monitor student mental and physical health.

3. Instructional & Emotional Support for Nursing Students after an Adverse Event

Tokuchin et. al (2019), from thirteen incident teaching reports prepared by faculty at a junior college, identified five issues in teaching: 1) Checking the Nursing Care Plan, 2) Incident Analysis, 3) Safe Clinical Training, 4) Reminders for Instructors Managing Clinical Training, 5) Guidance in risk prediction.

Shio et. al (2016) conducted interviews with students who had experienced adverse events and clinical instructors who had worked with those students at one university. Students were interviewed to identify six topics: 1) Student factors causing the incident, 2) Student-patient relationship after the incident, 3) Unacceptable teaching, 4) Teaching leading to growth, 5) Awareness and learning, 6) Sharing lesson learned with other students. Clinical instructors were interviewed about the following six topics: 1) Student-patient relationship, 2) Patient safety, 3) Student mental health support, 4) Collaboration with teachers, 5) Providing learning opportunities, 6) Mutual growth with students. The students who experienced adverse events were greatly influenced by the patient's situation, and their ability to foresee danger was limited. The clinical instructors put patient safety first, and were involved with the students so they could learn from their mistakes by allowing them to continue even if they made minor mistakes.

Komura et. al (2021) identified the characteristics that cause mistakes in clinical practice and relationship between teacher involvement and risk sensitivity among 1348 final-year nursing students from universities and vocational schools. Of the 300 students who experienced an adverse event 144 were aware of the mistakes made themselves. Most of the adverse events in clinical practice were caused by carelessness or self-judgment errors by the nursing students, such as mistakes related to personal information and record-keeping, and handling of medical devices. Risk sensitivity scores were higher for students who perceived that their teachers provided them emotional support.

4. Instructor's Awareness in Clinical Training

Inoue et. al (2021) reported students' awareness toward clinical training and teachers' and instructors' awareness toward building collaboration between them at a junior college. The students were happy to experience praise, but were intimidated by aggressive and other behavior toward them that they deemed unreasonable. Communication was the most common issue raised by both the teachers and clinical instructors. Regarding collaboration, 76.7% of the clinical instructors were able to collaborate effectively, compared with 93.9% of the teachers who were more aware of the importance of collaboration and cooperative education. Problems with collaboration included clinical instructors felt that they had to balance their work and that there was a lack of cooperation among their colleagues, while teachers felt that there were many problems in cooperation and collaboration with hospital staff. Although both teachers and clinical instructors were highly aware of the importance of collaboration, there were issues such as the sharing of information, individual communication skills, and a gap in awareness of medical safety during training. There was also a significant difference in the awareness of the pressure to deal with incidents caused by students (21.7% of clinical instructors and 83.3% of teachers).

Takashita (2013) received feedback from students and clinical instructors at one vocational school regarding learning and training methods in integrated shadowing. Students responded positively to 89% of the objectives, content, and methods of the practice, and clinical instructors responded 79% positively. The students' learning included medical safety measures in giving medicine and measures to prevent nosocomial infections. The clinical instructors recognized the following: students lacked patient information, some students were not proactive, they had difficulty confirming the students' degree of comprehension, and did not have enough time to teach them thoroughly.

Nakao et. al (2012) identified six reasons that caused confusion among ward nurses' during clinical training,: 1) Nurse-related, 2) Student-related, 3) Lack of time/overwork due to other work-related duties, 4) Lack of collaboration with teachers, 5) Problems with the educational system, 6) Medical safety-related. With regard to medical safety, there were many questions such as whether it is okay to suddenly allow students to provide treatment, which might make the patient feel uncomfortable, and how to make sure the students do not make a serious mistake.

5. Basic Nursing Education Programs and Teaching Systems

Yamaguchi et al. (2021) studied the school credit system and content of the curriculum in third year vocational schools. 56 schools (25.2%)

responded to their survey, and the courses that included medical safety-related content in the integrated practical training program (4 credits). The following courses included medical-related content: 1) Medical Safety: 36 lectures, 2) Nursing Management: 19 lectures, 3) Safety in Assistive Technology: 15 lectures, 4) Integration and Practice of Nursing: 14 lectures, 5) Disaster Nursing/ International Nursing: 3 lectures, 6) Nursing Research: 1 lecture, 7) Nursing Ethics: 2 lectures, 8) "Other": 5 lectures. This totals 95 lectures for the 56 schools that participated in this study. Over 80% of the 11 WHO Patient Safety Curriculum Guide (WHO-PSCG) topics were used by the institutions. Most of the educational methods were lecture-based, with few role-plays. The respondents noted there were difficulties in teaching the reality of the actual situation and communicating the seriousness of the risks. In addition, the teachers felt that students were anxious and fearful of accidents, and anxious due to their lack of technical knowledge, skills, and experience.

Toyabe et. al (2016) surveyed the quality and quantity of medical safety education for medical students at national universities in Japan. The class hours for the three fields (medical, dental, and nursing) ranged from 7.0 to 9.5. There was no medical safety education for nursing students provided at two universities. Class hours varied widely by university, and for all three fields. The number of practical training classes was significantly less than the number of lectures. In terms of academic year, medical and dental students most these classes were heavily-weighted in their fourth year, while there was no significant difference with nursing students throughout all four years. The length of class and school year of clinical training varied at each university. Although medical safety education was mainly lecture-based, it was combined with clinical training, case studies, and role-playing exercises. The median number of WHO-PSCG topics taught was eight. The following topics were taught less than 50% in the medical schools: "7. Improving Medical Care Using Quality Improvement Methods", "8. Collaborating with Patients and Caregivers", "9. Prevention and Control of Infection", "10. Patient Safety and Invasive Procedures". In addition, Toyabe et al. also studied 10 topics specific to Japan: 1) Basic Legal Knowledge, 2) Medical Court Case Studies, 3) Cadaver Research, 4) Medical Accident Investigation System, 5) Medical Record-keeping, 6) Medical Equipment, 7) Personal information Protection, 8) Confidentiality, 9) Medical Waste Management, 10) Japanese Behavioral Psychology. However, only the following five topics were broadly taught at the time of this survey: 4) Medical Accident Investigation System, 6) Medical Equipment, 8) Confidentiality, 9) Medical Waste Management, 10) Japanese Behavioral Psychology. A median of 4 topics is being taught by the schools. In addition, few universities had staff from the medical safety management department of the hospital involved in the classes.

Echizen (2017) surveyed 1,132 teachers at 24 universities and 66 vocational schools to receive feedback concerning nursing-related educational content based on their professional background. The faculty members were familiar with the educational content related to problem-solving, nursing process, and medical safety management nursing care for patients in poor health. All 8 of Echizen's 141 educational items for "Provide a Safe Care Environment," were deemed "Very Necessary" by the respondents (88.0–97.4%). The factors influencing their responses were age, education level, years of nursing experience, years of teaching experience, and years of specialized nursing education. Age, education level and nursing experience positively influenced the necessity of each educational item, where the opinion of inexperienced nurses tended to be more negative.

Endo et. al (2020) surveyed the current status of clinical training for teachers in 3-year programs. 18 out of 60 facilities had clinical training programs, and the average training period was 4.1 days. The purpose of the training was to understand the patients' situation to maintain and improve clinical practice skills, to gain experience in other training environments, and to study other teaching materials. Difficulties in introducing the training program were securing time, securing training facilities, and securing expenses. Difficulties in continuing the training were securing time, the feeling of lack of necessity, and securing expenses. The effectiveness of the training can be attributed to the educational content, improvement of teachers' confidence, improved collaboration, deepening of teachers' own knowledge, and strengthening ties with the training facilities.

Igarashi (2017) studied adverse events over a 2-year period at a vocational school. The number of level 0 reports increased from 16 to 26 after the implementation of the reporting system. The most frequent incident reports were 43 cases related to administration, 27 of which were clerical, 43 cases related to examinations, 20 cases

related to lectures, and 17 cases related to information management.

Discussion

1. Medical Safety Curriculum

In 1999, the Institute of Medicine (IOM) published "To Err is Human: Building a Safer Health System", which reported the state of medical accidents in the U. S. In Japan, serious medical accidents in the past have led to continued efforts in accident prevention and medical safety. Since the 2009 revision of the basic nursing regulations which clearly stipulated the acquisition and integration of basic knowledge of medical safety in the practical training of nurses, both the Ministry of Health, Labor and Welfare (MHLW) (2011) and The Japanese Association of Nursing Programs in Universities (JANPU) (2018) defined the practical skills required to graduate. Internationally, WHO (2011) created the WHO-Patient Safety Curriculum Guide (WHO-PSCG) to support the development of patient safety at nursing colleges, universities and medical facilities. In Japan, it has been translated into Japanese by Tokyo Medical University and has been used in education and clinical training.

Toyabe et al. (2016) compared the medical safety education in Japan among medical, dental, and nursing students using the 11 topics of the WHO-PSCG. This study pointed out that although education has been conducted in accordance with the "Medical Education Model: Core Curriculum" there is little content on medical safety management, thus examined the minimum level of this particular education required by time of graduation. Toyabe et al. pointed out the need to add general objectives, behavioral objectives, and learning methods. However, the 2022 revision of the "Medical Education Model: Core Curriculum" does not include any such related content. Toyabe et al. also mentioned that the 11 topics of the WHO-PSCG are common internationally and that medical safety management is influenced by socio-cultural backgrounds and political and economic conditions unique to each country. Thus, he considered the need for specific educational content guidelines be taken into account for Japan. These 10 topics are: 1) Basic Legal Knowledge, 2) Medical Court Case Studies, 3) Cadaver Research, 4) Medical Accident Investigation System, 5) Medical Record-keeping, 6) Medical Equipment, 7) Personal information Protection, 8) Confidentiality, 9) Medical Waste Management. 10) Japanese Behavioral Psychology. However, only the following five topics were broadly taught at the time of this survey: 4) Medical Accident Investigation System, 6) Medical Equipment, 8) Confidentiality, 9) Medical Waste Management, 10) Japanese Behavioral Psychology.

Yamaguchi et al. (2021) also surveyed 56 junior colleges and 7 vocational schools that used the WHO-PSCG guidelines listed below: Topic 1: What is patient safety?, Topic 2: Why applying human factors is important for patient safety, Topic 3: Understanding systems and the effect of complexity on patient care, Topic 4: Being an effective team player, Topic 5: Learning from errors to prevent harm, Topic 6: Understanding and managing clinical risk, Topic 7: Using quality improvement methods to improve care, Topic 8: Engaging with patients and carers, Topic 9: Infection prevention and control, Topic 10: Patient safety and invasive procedures, Topic 11: Improving medication safety. Implementation rate in Japan was highest for "1. What is Patient Safety?" and "6. Understanding and managing clinical risk" and lowest for "7. Using quality improvement methods to improve care", which was the same result found by Toyabe et. al. Under "WHO-PSCG's topic 7. "Improve medical care using quality improvement methods". The learning objectives are "To be able to explain the principles of clinical training improvement and the basic methods and tools used to assess improvement in patient safety". In the nursing bachelor's program, learning how to research is included in the curriculum to give them the ability to continually develop their skills after they graduate and become professional nurses to continually improve the quality of nursing care (MEXT), (2011). Lectures on how to evaluate nursing quality and improve their critical thinking skills are difficult for students to learn in the basic nursing program.

Onishi (2020) found the same level of awareness between teachers and training staff with regard to needle injection skills that nursing students should learn. Needle injection techniques are practiced on campus using simulation equipment, but are rarely practiced on actual patients during clinical training due to patient risk and its invasiveness. However, it is one of the skills that new nurses are expected to implement as soon as they enter a hospital, so we believe that the results of this study are valuable and can be used to help improve the nursing program.

In Japan, safe medical care has become a growing public concern due to a series of medical

accident reports since 1999. Up until now the main focus of handling medical accidents has been to mitigate the damage of a hospital's reputation rather than focus on patient safety. However, a shift in attention to medical safety management, whose main purpose is to ensure patient safety rather than protect institutions from law suits, etc., is gradually making progress. Kono (2020) stated that there is no such thing as 100% safety in the medical field, but only minimizing risk. He emphasized the need for teachers and clinical instructors to follow proper procedures and to consult with other colleagues and superiors when in doubt in order to make the right decision. Medical safety is an organization-wide issue so communication skills are of utmost importance. In recent years, in order to improve medical safety, an emphasis on teaching communication skills (a non-technical skill) has been attracting attention. We believe it is important to establish a medical safety curriculum that clearly specifies what actions nursing students can take on their own without compromising patient safety.

Yamaguchi et al. (2021) examined the emphasis placed on medical safety in the educational curriculum. Course names that included medical safety-related content in the Integration and Practice of Nursing program (4 credits) were "Medical Safety," "Nursing Management," "Safety in Assistive Technology for Medical Treatment," and "Integration and Practice of Nursing,". The average number of lectures was equivalent to only 1.7 credits. Echizen (2017). Faculty members showed a high awareness of the need for 8 items (of the 141) to be included in the "Providing a Safe Care Environment" in the basic nursing curriculum. Kobayashi (2014) identified a growing need for medical safety education by stating that the number of nursing educational institutions that have included medical safety education as one of the subjects in their curriculum is increasing, partly in response to the revised government designated rules, but also because a situation has emerged where the safety of patients and students cannot be ensured without knowledge and skills in medical safety as the nursing profession's work expands and becomes more diverse. MEXT (2011) indicates that the basic nursing curriculum must include educational content that is related to the training of new recruits and can lead to further professional development in the future. The Japanese Association of Nursing Colleges (2018) explains that providing safe care environment involves the ability to assess accident risk and to understand and implement appropriate prevention measures.

The undergraduate curriculum includes three major topics: 1) "Role in Organizational Medical Safety Management", 2) "Medical Safety Management", 3) "Infection Prevention Measures". There are 12 additional sub-topics including risk management, safety management, and the formation of a "Safety Comes First" culture. These guidelines should be used when considering the goals and specific content of medical safety education. However, each university has its own policies on how to incorporate medical safety, which is we believe is one of the most important foundations of its educational curriculum. This curriculum should be consistent with the educational philosophy, goals, policies, and diploma or degree criteria of each university.

According to the revision of the FY2020 regulations, 6 out of 23 credits for clinical training in any field can be arranged at the discretion of each training center in order to enhance the effectiveness of the clinical training. In the Guidelines for Nursing Practice (2019), clinical training of each university is part of the curriculum, but the specific methodology is left to each university to decide. Clinical training is aimed to cultivate interpersonal relationships with the facility (hospital, clinic, etc.) personnel to facilitate the acquisition of various abilities such as real-life problem-solving skills and hands-on patient care that cannot be experienced within the university. Omori (2022) examined alternative training to clinical training during the Covid pandemic, and suggested that online-based training has certain benefits but clinical training teaches the importance of establishing personal relationships with patients. It is expected that lectures and clinical training will continue to be given in a constrained environment in the future, so continuous consideration of the content and methods of education, the goals and content of clinical training, and other aspects of medical safety education are needed.

Kobayashi (2014) pointed out the importance of clinical training, saying that no matter how much knowledge and skill is acquired in on-campus exercises, without practicing the technical application in a clinical setting, it is impossible to provide proper nursing care. Additionally, the Japanese Nursing Association (2016) states to always be aware of patient and self-safety first. This requires having a strong understanding of the fundamentals, and the ability to freely seek the guidance and support from teachers and

clinical instructors.

2. Educational Ability of Teachers

Sumai et al. (2016, 2013) reported that the teachers' backgrounds, job positions, and attendance at medical safety training courses affected their attitude toward teaching, the utilization of medical safety education materials, and self-confidence. Both teachers with special medical safety training and those without were motivated but lacked confidence in their ability to teach safety education. Yamaguchi et al. (2021) reported that medical safety education largely relied on lecture-based methods with limited role-playing, and that there were challenges in effectively conveying the workplace realities such as the responsibility of being a professional nurse. In addition to the limited lecture time the teachers were also concerned that students might become reluctant to participate in the training due to lack of confidence and excessive anxiety about making mistakes. Many schools have incorporated medical safety content into the "Integration and Practice of Nursing" program (4 credits) in the specialty area of the government's designated regulations. Yamaguchi et al., 2021, reported that basic nursing lectures and clinical training are effective in teaching students the concept and basic procedures of medical safety. The 12 topics related to medical safety in the nursing program are diverse, and there are also many textbooks for lectures on medical safety where their subject content in order to graduate as dictated by the Japan Council of Nursing Program Universities (2018) are equally diverse. The results of this study indicate that it is not easy to compile an average of 1.7 credits and it is likely that the faculty members at each institution are struggling with this task. The future challenge is to improve the overall quality of the curriculum and teacher training.

WHLW, (2010) lists five abilities required of nursing faculty: 1) Teaching skills, 2) Communication skills, 3) Nursing skills. 4) Management skills, 5) Research skills. Teachers' capacity pertains to their capability of creating and implementing educational subject matter, in addition to instructing and assessing the students' level of learning. Creating a curriculum involves crafting instructional materials that cater to current demands and enhancing, evaluating, and refining the delivery of those lessons. Imoto (2018) investigated the competencies of new, mid-career, and proficient nursing faculty staff and found that new teachers felt they lacked teaching practice, communication and management skills, and all faculty members shared a lack of research skills. Teachers at the nursing school are qualified by attending a training course for nursing teachers (8 months: 900 hours). New nursing faculty members are required to practice as full-fledged teachers immediately after joining the profession (MHLW, 2010). There are refresher courses for full-time teachers and special career development courses for executive nursing teachers to further develop their skills. However, there are few organizational and government support programs in place.

MEXT (2011) states that the most important factor in assuring the quality of education is the qualitative and quantitative enhancement of faculty members, and that each university is required to provide a suitable program to meet these objectives. Nursing colleges and universities are required not only to provide the professional education necessary to prepare students for the national nursing examination, but also to cultivate critical thinking, creativity, and research skills. Each university's nursing faculty should consider the curriculum necessary to fulfill the responsibilities and educational philosophy of their respective university. This encompasses not only medical safety education but also the entire educational curriculum. We believe this will lead to the enhancement of faculty members' teaching abilities.

Yamaoka et al. (2020) analyzed the experiences of nursing faculty members whose students were able to avoid adverse events from occurring during clinical training and applied their method of teaching, level of involvement and other factors into a formal protocol. Sadahiro et al. (2015) also reported the measures taken by nursing faculty members to prevent adverse events in clinical practice. These are specific daily measures for accident prevention in clinical training whose results are significant and can be utilized to bolster their instructional abilities.

Tokuchin (2019) analyzed the teachers' reports regarding real incidents that students had during clinical training and identified the lack of specific reminders as a key issue in teaching. In addition to analysing student incidents, the faculty members and clinical instructors should share their teaching experiences, which will provide an opportunity to further develop their teaching skills. Komura (2021) reported the current state of faculty engagement in students' errors during clinical training. This included a provision for reporting and communicating, as well as con-

sidering some form of emotional support for the mental well-being of students. The study found that students who received this kind of support demonstrated a greater sensitivity to risk compared to those who did not receive such support. The fact that individual emotional support for students who experienced an adverse event and fostering an attitude of learning from their mistakes lead to an increase in risk sensitivity which indicates that experience is a valuable opportunity for learning, and requires non-technical skills such as communication and empathy of teachers.

The Guidelines for Nursing Practice (2019) indicate that the role of the nursing faculty is to help students integrate the knowledge, skills, and attitudes they have acquired through the provision of nursing care, and to serve as a role model as a nurse practitioner and educator for the students. Furthermore, since faculty members are often separated from the field of practice when they work at universities, they should make an effort to maintain and improve their practical skills in the field by keeping abreast of the latest developments in their field. According to a survey by Endo et al. (2020), only 18 institutions (30.0%) had clinical training programs for faculty members, and the average training period was 4.1 days. Although the training programs were partially effective in teaching the educational content and deepening cooperation with training facilities, the time was insufficient due to the problems of securing training facilities, and the expense involved. Since it is obvious that the faculty members need to improve their technical and non-technical skills, it is desirable for universities and other educational institutions to establish clinical training programs for faculty members and support systems for their participation in training both within and outside of the university.

3. Educational Abilities of Clinical Instructors

Isene et al. (2019) outlined the features of medical accident prevention measures implemented by clinical instructors during training. These included: knowledge and familiarity with medical accidents in hospital wards and applying specific nursing practices in order to prevent them; communicating and strictly enforcing set rules for students to follow; minimizing the risk of miscommunication by limiting the number of clinical instructors and developing a good working relationship with teachers and other colleagues. This will be of great help to clinical instructors to objectively review their own behavior and teaching method. Shio (2016) conducted interviews with clinical instructors who had worked with students involved in adverse events, and reported that patient safety was first above all else. However, they used their judgment as to whether to intervene, or not in order to facilitate learning from minor mistakes. They also had the student reflect on their performance and used their mistakes as a valuable method of learning. Nakao et al. (2012) found that the ward nurses' difficulties in teaching practical training included their own teaching limitations, students' abilities and attitudes, lack of time due to concurrent work duties, lack of cooperation with faculty members, deficiencies with training system, and students' anxiety. Inoue et al. (2021) reported a disconnect in the communication and collaboration between clinical instructors and teachers. One reason for this was a difference in the desired information exchange between the two groups, communication issues, and varying perceptions on how to address student incidents. Notably, teachers reported feeling significantly more pressure to respond to student incidents than the clinical instructors.

According to the Guidelines for Nursing Practice (2019), clinical instructors are expected to be role models as nursing practitioners by facilitating a good relationship between the students and healthcare professionals and by demonstrating a professional attitude. In Japan, there is no official training education certification for clinical instructors. Instead, clinical instructors receive training through a standardized curriculum (8 weeks: 240 hours) offered by MHLW and other various prefectural governments. The purpose of this course is to understand the significance of clinical training in nursing education and the role of the clinical instructor, and to acquire the knowledge and skills necessary to be an effective instructor. According to the MHLW (2022), 67 training sessions (3,935 participants) were scheduled nationwide in FY2022, but since the cost of participation was borne by the facilities, participation from smaller facilities was considered difficult.

Kon (2022) aimed to establish a self-evaluation index for fulfilling the role of a clinical instructor. She reported that those who attended the training course had significantly higher scores than those who did not participate. In recent years, depending on the size of the facility, the current trend for clinical training is that a single training facility accepts students from many universities,

vocational schools, and different levels of training. The question of how to arrange the clinical training sites for students is a major challenge for each educational facility, given the difficulty in securing and retaining qualified trainers at such facilities.

The number of people in need of medical and nursing care in Japan continues to increase, so the number of universities and educational institutions that train medical and nursing care workers is also increasing. Clinical training sites for basic nursing education include a wide range of facilities such as private homes, elderly care facilities, and daycare centers. However, securing and coordinating these facilities is a challenge. From the government's revised "Regulations" improved cooperation with medical facilities requires the ability to show the mutual benefits of that can be derived by such a collaboration. MHLW (2010) introduced a clinical faculty system that utilizes clinical training nurses, and MEXT (2011) utilizes full-time faculty members who are both practicing and teaching and have the latest knowledge and skills. In recent years, an increasing number of educational institutions in Japan have introduced "Unification", in which the responsibility for education, research and nursing services is assigned to a single medical institution.

Watanabe et al. (2019) examined the results of a clinical facility that implemented this "Unification" system. Sasuga et al. (2017) investigated the current issues involving the cooperation between universities and hospitals after the conclusion of a comprehensive cooperation agreement and presented measures to further promote cooperation by building relationships between the two parties. We believe that such a comprehensive cooperation agreement will help both educational institutions and clinical facilities to improve the quality of education and care through personnel exchange, utilization of human resources, shared research activities, leading to the achievement of the goals of both parties. Furthermore, Nakanishi et al. (2018) introduced a case study of clinical training instruction by an experienced clinical training instructor at a hospital who was selected as a dedicated clinical instructor at a university for eight months. This person discussed the roles of a dedicated clinical instructor, and reported that close collaboration of full-time educational faculty members and clinical training instructors is essential for improving the effectiveness of student learning. We believe that the study of organizational support and the creation of a system to enhance the leadership skills of training instructors is also an important issue in medical safety education.

Conclusion

There are three main conclusions to draw upon from this narrative review of seventeen articles related to "medical safety" and "nursing education" in Japan.

1. The general consensus reveals the need to improve the nursing curriculum and overall system in order to raise the quality of both the educators and students concerning medical safety education in Japan. The current medical safety curriculum lacks a standardized training program, which has led to a wide discrepancy of course content offered at various educational institutions and the proportion of medical safety-related courses of 1.7 credits offered by these institutions is insufficient.
2. Both teachers and clinical instructors need organizational or government support to assist in their career development to enable them to become better educators, which will lead to higher quality nursing graduates.

Conflict of Interest (COI)

The authors have no conflict of interest to disclose regarding this study.

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