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Medical-Surgical Nursing Scientific Method in Improving Clinical Competence

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Abstract. Problems that arise in the implementation of medical-surgical nursing clinical learning make students weak in achieving clinical competence, critical thinking skills, case analysis, and clinical decision-making. The scientific method is a learning approach that uses steps and scientific rules to implement the learning process. So that students always find out from various sources and information through observing, asking, trying, processing, presenting, concluding, and creating. This method is a learning method that touches on three domains: knowledge (cognitive), attitude (affective), and skills (psychomotor). This study aimed to assess the effectiveness of the scientific method in improving clinical competence and learning outcomes for nursing students in medical-surgical nursing courses. This study used a quasi-experimental method with the subject of nursing professional education students. The data analysis technique uses the t-test with the help of the SPSS program. The results of clinical studies before and after applying the scientific method showed differences in the pre- and post-test scores, with a p-value of 0.000. The results of this study indicate that the scientific method can improve students' clinical competence, including the ability to think critically and analyze cases.

Keywords: Scientific Method; Medical-Surgical Nursing; clinical competence

INTRODUCTION

Nurse Professional Education is an academic-professional education with a learning process emphasizing the growth and development of student's abilities to become academics and professionals (AIPNI, 2016). The clinical learning experience of nursing students is a process of transformation into a professional nurse by providing the opportunity to adapt to their role as a professional nurse so that nurses can behave and have a professional outlook, have a broad nursing perspective, and have adequate nursing scientific knowledge, and master professional skills. Properly and correctly.

In order to shape personality and develop attitudes in life and how to work, it is necessary to have a learning approach that can improve critical thinking skills in analyzing cases and solving patient problems. One learning approach that can be used to increase creativity, critical thinking skills, and clinical competence is a scientific learning approach, which is a learning approach that uses steps and scientific rules in implementing the learning process (Daryanto, 2014). So students learn from various sources and information through observing, asking, trying, processing, presenting, concluding, and creating (Sudarwan, 2013). The learning model touches on three domains, namely knowledge, attitudes, and skills (Musfiqon & Nursyansyah, 2015).

The emphasis on clinical learning with a scientific approach to medical-surgical nursing education is to develop cognitive, psychomotor, and affective abilities with problem-based learning. This learning approach presents contextual problems to stimulate students to learn. This learning model challenges students to learn how to learn and work in groups to find solutions to real-world problems (Daryanto, 2014).

However, current clinical learning sometimes poses challenges that can cause students to experience stress and anxiety. High anxiety levels can affect students' clinical performance, threatening success in clinical rotations. Clinical education institutions need to foster a conducive learning environment, so clinical supervisors need unique methods and approaches in clinical learning to reduce student anxiety.

The gap between theory and practice in nursing education, especially those related to clinical instructor factors, adequate supervision of clinical instructors in a clinical environment is vital for student learning, and the need for clinical supervision and supervision of students because this can support and improve clinical competence.

The supervisor's role is demonstrated through structured supervision activities to ensure quality, support, and assurance of students' clinical learning experiences. Clinical guidance is significant in improving critical thinking skills, as explained in the results of Heyden's research (2014), that results of mentoring preceptors

(clinical supervisors) in clinical guidance are significantly related to changes in critical thinking in practice, communication, assessment, and decision-making. This is also supported by Akram's research, Mohamad, Akram (2018) suggests that a clinical instructor, in carrying out clinical learning, must use a clinical learning approach that can provide students skills in solving problems or making clinical decisions with a case study approach.

METHODS

This study used a quantitative method with a quasi-experimental approach with two groups pre-post-test. The population in this study were nursing students, with a group of respondents from professional nurse education students practicing medical surgical nursing. The sampling technique used was a purposive sample involving 30 respondents, comprising 15 respondents in the control group and 15 in the intervention group. The inclusion criteria were nursing students in professional nursing education, practicing medical surgical nursing at a hospital, and passing pre-clinical and theory exams. Data were collected for one week, and students carried out clinical learning by applying the scientific method in providing nursing care to patients. Before starting clinical learning, students are given a test by working on questions in the form of case analysis, and after carrying out the practice, it is measured as a post-test. In addition, students carry out competency assessments and clinical assignments, including clinical competencies consisting of case tutorials, case presentations, nursing care, clinical competency assessments, and attitude assessments. The analysis used includes an analysis of clinical competency assessment, which includes cognitive, psychomotor, and affective abilities.

RESULTS AND DISCUSSION

Changes in the world of education due to the industrial revolution 4.0 make it a challenge and an opportunity that must be taken advantage of. This is following developments in the 21st century which demands a generation of students who can think critically, think creatively, solve problems, and communicate and collaborate. The existence of demands for needs in the 21st century demands enormous changes in the world of education. This is in line with the policy of the Ministry of Education and Culture of the Republic of Indonesia, formulating that the 21st-century learning paradigm emphasizes the ability of students to find out from various sources, formulate problems, think analytically and cooperate, and collaborate in solving problems.

At the same time this is in accordance with the 21st century learning framework according to BNSP (2010) as follows: (1) Critical-Thinking and Problem-Solving Skills, able to think critically, laterally and systematically, especially in problem solving context; (2) Ability to communicate and collaborate (Communication and Collaboration Skills), able to communicate and collaborate effectively with various parties; (3) Ability to create and update (Creativity and Innovation Skills), being able to develop their creativity to produce various innovative breakthroughs; (4) Information and Communication Technology Literacy, being able to utilize information and communication technology to improve performance and daily activities; (5) Contextual Learning Skills, being able to undergo contextual independent learning activities as material for personal development, and (6) information skills and media literacy, being able to understand and use communication media to convey various ideas and carry out collaborative activities as well interactions with various parties.

Therefore, it is necessary to make adjustments and changes in the implementation of education so that student competencies can be fulfilled. This research is expected to contribute to nursing students' clinical competence in critical thinking and problem-solving. The results of the research and discussion can be explained below. :

1. Respondent Characteristics

Table 1. Respondent Characteristic

No	Characteristics	Frequency	Percentage
1	Sex		
	Female	28	93
	Male	2	7
	Total	30	100
2	Age		
	22 years old	20	67
	23 years old	10	33
	Total	30	100

From table 1 it can be explained that the majority of respondents were women, as many as 93% (28 people). The health profession, especially nursing, is more dominated by women, this relates to the type of work done, namely caring for and caring for patients who are sick, the instinct to care is mostly done by mothers or women. While the age category shown in the table is mostly 22 years old, namely 67% (20 people).

2. Test Results

This test was carried out to find answers to one of the indicators of learning effectiveness in the intervention class, namely the achievement of complete learning outcomes (clinical competence) with a minimum mastery criterion (pass mark) of 75. In this study, data obtained from the clinical competency assessment of the intervention class obtained a value of t = 2 .79, thus Ho is rejected, which means the clinical competency score is above 75. From the results it was found that the average clinical competency assessment was more than 75. So that the clinical competence assessment completeness with a minimum of 75 completeness criteria was achieved.

The result of the attitude competency assessment (affective) is the average value of attitude is 94.8, meaning that the attitude of nursing students is high. Meanwhile, from the aspect of psychomotor competence (clinical skills), it was found that the average clinical skill of nursing students was 94.5, this means that the skills of students are included in the high category.

Table 2. Intervention Group Effect Test Results

No	Characteristics	SD	df	t	sig
1	Intervention Group Pre - Post test	0.70373	14	-9.539	0.000

The results of the study showed that there was an effect on the intervention group after carrying out clinical learning actions using the scientific method, this was indicated by a p value of 0.000. The scientific method is effective in improving learning outcomes and the ability of nursing students to achieve clinical competence. This shows that the scientific approach in the management of medical surgical nursing clinical learning refers to learning methods that are centered on observation, problem solving, and hypothesis testing. This approach will help students understand the concepts and principles of medical surgical nursing better and more deeply.

From the explanation above, it can be concluded that the purpose of the scientific approach in clinical management of medical-surgical nursing is to help students develop critical thinking skills, problem-solving skills, and appropriate decision-making abilities in dealing with complex clinical situations, so as to improve learning outcomes. Thus, students will acquire the knowledge and skills needed to become reliable medical surgical nursing practitioners.

The steps of the scientific approach in clinical management of medical surgical nursing include:

1. Conducting observation

At this stage students make observations of the patient's condition, through this observation or observation students will collect data both subjectively and objectively. Some of the activities that can be carried out at this stage are making observations, interviewing patients and families, carrying out physical examinations by measuring or using tools, reading, listening, listening, listening, and seeing. The results of the observations become data that will be analyzed in

order to raise problems or patient nursing diagnoses.

2. Asking questions

In order to complete patient data, after getting cases and making observations and observations, students make a list of questions about things that are unknown or need to get further explanation, which then look for answers through several relevant activities, namely conducting reassessments, examinations, seeking information from other sources, and consulting clinical supervisors, other health teams or experts. The list of questions that have been compiled and the answers obtained become material for analysis in solving patient problems. Then students compile a list of nursing problems or nursing diagnoses which are complemented by compiling a nursing plan according to the problems found.

3. Conducting experiments

At this stage students carry out trials or carry out experiments, in nursing practice by carrying out nursing actions as a form of implementation of the nursing plans that have been prepared in the previous stage. Supervisors provide guidelines for directing student activities and clinical supervisors provide direction, guidance, and formulate experimental objectives. In carrying out the experiment, students are accompanied by a clinical supervisor, by preparing the equipment to be used, determining the place and time. Students carry out experiments with the guidance of lecturers or clinical supervisors, then students collect activity action reports and clinical supervisors evaluate them. Activities carried out include exploring, trying, discussing, demonstrating, imitating shapes or movements, reading other sources, collecting data from sources/experts and modifying, adding to or developing the results of experiments/actions that have been carried out.

4. Reasoning/Associating

The activity of associating or reasoning in clinical learning activities of Medical Surgical Nursing is to process information that has been collected both from the results of the initial assessment through observation and observation, data collection activities, results of observing activities or from the results of nursing actions that have been carried out. The processing of information collected ranges from those that add breadth and depth to information processing that seeks solutions from various sources that have different opinions. Information obtained from observations or experiments carried out must be processed to find the linkage of one piece of information with other information, find patterns from the linkages of information, and draw various conclusions from the patterns found. Activities carried out include processing information, analyzing data in the form or creating categories, associating or connecting related phenomena or information in order to find patterns, and conclude.

5. Building networks

The activity of communicating or building networks in clinical learning activities of Medical Surgical Nursing is an activity of conveying the results of observations and conclusions based on the results of analysis orally, in writing, through discussion or sharing of the results of care management, case presentations, nursing rounds, writing published articles. Communicating activities can be done by writing or telling what is found in information seeking activities, associating and finding patterns. In this activity, supervising lecturers and clinical supervisors can clarify so that students know correctly whether the answers that have been done are correct or if there is anything that needs to be corrected. Next the activities carried out are presenting reports in the form of diagrams, charts or graphs, compiling written reports, and presenting reports covering processes, results and conclusions.

By applying the clinical learning stages of the scientific approach, students can have more experience in achieving clinical competence, analyzing cases and making clinical decisions. Because the scientific approach to clinical learning management in medical surgical nursing has several advantages, including:

a. Encouraging critical thinking: students will be taught to think critically and objectively in dealing with complex clinical situations.
b. Improve problem solving skills: students will be trained to identify problems and find the right solutions in dealing with complex clinical situations.

CONCLUSION

The scientific method can improve the completeness of students' learning outcomes and clinical competence, including the achievement of critical thinking competence and case analysis. Strengthening critical thinking skills and case analysis will improve the quality of patient nursing services. This is following the quality standards of patient care that are synchronized with. The ultimate goal of clinical nursing

education is a behavior change process in the stages of achieving competence, namely the occurrence of behavioral transformation, which is an integrated maturity of the system prepared by education in input, process, and output. Through clinical learning with a scientific approach, students are expected to be more active and creative, think critically in every action they take, and have continuous innovation, so that students will become people skilled in using theory. In addition, they also can make clinical decisions that integrate theory, law, knowledge, principles, and the use of particular skills according to their competence.

REFERENCES

AIPNI, (2016). *Kurikulum Inti Pendidikan Ners Indonesia.* Jakarta: Asosiasi Institusi Pendidikan Ners Indonesia

Akram, Abu, Salah. Mohamad, Aljerjawy. Akram Salama, (2018). *Gap between Theory and Practice in the Nursing Education: the Role of Clinical Setting* https://juniperpublishers.com/jojnhc/pdf/JOJNHC.MS.ID.555707.pdf

BNSP, (2010). *Paradigma Pendidikan Nasional Abad XXI*, http://www.bsnp-indonesia.org/id/wp-content/uploads/2012/04/LaporanBSNP-2010.pdf (diunduh pada tanggal 11 Maret 2022)

CPAS, DENOSA, FUNDISA, NEA, PHEPSA, SANC. (2015) *Clinical Teaching Models For Nursing Practice : A Literature Review*. https://pdfs.semanticscholar.org (diunduh 12 Februari 2019)

Daryanto, (2014). *Pendekatan Pembelajaran Saintifik Kurikulum 2013*. Yogyakarta : Gava Media

Flott, Elizabeth. Linden, Lois. (2015). *The Clinical Learning Environment In Nursing Education: A Concept Analysis*. https://doi.org/10.1111/jan.12861. (diunduh tanggal 28 Januari 2020)

Indriasari, Nur, Fika, 2016, *Hubungan antara Penerapan Model Pembelajaran Problem Based Learning dengan Motivasi Belajar Mahasiswa Program Studi Ilmu Keperawatan.*

Jamshidi, et all. 2016. *The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study*. http://dx.doi.org/10.1155/2016/1846178. (diunduh 1 Februari 2020)

Kurhantanti. & Wara, B.M. *Pendekatan Problem-Based Learning dalam Pembelajaran Praktik Kerja Lapangan Terapi Fisik*. https://core.ac.uk/download/pdf/11059899.pdf. (diunduh 1 Agustus 2021)

Musfiqon, H,M. & Nurdyansya, (2015). *Pendekatan Pembelajaran Saintifik*. Sidoarjo: Nizamia Learning Center

Nursalam. & Efendi, F. (2015). *Pendidikan dalam Keperawatan.* http://eprints.ners.unair.ac.id/534/1/Pendidikan_Dalam_Keperawatan.pdf. (diunduh 1 Agustus 2020)

Sudarwan, (2013). *Pendekatan-Pendekatan Ilmiah dalam Pembelajaran*. Jakarta: Workshop Kurikulum

Rivai, Veithzal. Murni, sylviana. (2009). *Education and Management Analisis Teori dan Praktik.* Jakarta : Raja Grafindo Persada

Rubenfeld, G.M. & Scheffer, K.B. (2010). Berpikir Kritis untuk Perawat Strategi Berbasis Kompetensi. Jakarta : EGC

Sani, A, R. (2017). *Pembelajaran Saintifik untuk Implementasi Kurikulum 2013*. Jakarta : Bumi Aksara