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Original Article

The Effect of Student-Centered Learning with the Make a Match Method on Nursing Students' Knowledge of Patient Safety Goals

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Abstract
Understanding the six patient safety goals is crucial for nursing students to prevent adverse events in clinical practice. The *make a match* method is an interactive cooperative learning approach designed to enhance engagement and improve knowledge retention. This study aimed to determine the effect of education on patient safety goals using the *make a match* learning method on the knowledge of undergraduate nursing students. This study employed a pre-experimental design with a one-group pretest–posttest approach involving 69 nursing students selected through purposive sampling. The research instrument was a 34-item patient safety goals knowledge questionnaire developed by Dhewa (2017). Data were analyzed using the Wilcoxon signed-rank test with a significance level of 0.05. Before the intervention, most respondents had a moderate level of knowledge (63.8%). After the intervention, the majority demonstrated a good level of knowledge (91.3%). The Wilcoxon test showed a significant difference between pretest and posttest scores ($p = 0.001 < 0.05$), indicating a statistically significant improvement in knowledge following the educational intervention. Education using the *make a match* cooperative learning method effectively enhances nursing students' knowledge of patient safety goals.

Keywords: nursing students; make a match; patient safety

Introduction

According to Lawrence Green, there are three main factors influencing health promotion: predisposing factors, which include an individual's knowledge and attitudes; enabling factors, which refer to facilities, infrastructure, or resources that support behavioral change; and reinforcing factors, which involve community leaders, regulations, laws, and official decrees issued by central or local government authorities (Sari et al., 2025).

One of the main approaches in implementing health promotion is health education, which plays a vital role in increasing knowledge and shaping attitudes to enable individuals to make appropriate decisions regarding healthy living behaviors (Grøndahl et al., 2025). Health education involves activities aimed at providing and enhancing knowledge, attitudes, and practices among individuals, groups, or communities to maintain and improve their health (Grøndahl et al., 2025; Tenri Diah, 2023).

Various health education methods can be applied to achieve the ultimate goal of behavioral change (Kim & Shin, 2025). The individual method is typically used to foster new behaviors or to guide individuals who have begun to show interest or motivation toward behavioral change. This method may employ approaches such as counseling, guidance, and interviews (Chance, 2025).

The small-group method, used for fewer than 15 participants, can involve techniques such as group discussions, role-playing, and simulation games (Hosseinpour & Keshmiri, 2025). Engaging learning methods that prevent boredom during the learning process include project-based learning, educational games, interactive discussions, and the use of technology such as instructional videos and simulations (Hartini et al., 2022; Sukardi et al., 2025).

These methods not only focus on delivering material but also provide opportunities for students to actively participate, collaborate, and develop deeper understanding, thereby creating a more engaging and meaningful learning experience (Hartini et al., 2022). Examples of cooperative learning methods include the Jigsaw method, in which each group member is responsible for mastering one part of the material and then teaching it to others (Nikolova et al., 2025); the Think-Pair-Share method,

which encourages students to think individually, discuss in pairs, and then share their insights with a larger group (Akhtar et al., 2024); and Group Investigation, in which students collaboratively investigate a topic and present their findings (Akhtar et al., 2024).

All these methods are designed to enhance collaboration, communication, and understanding among learners. Another cooperative learning method that can be used is the Make a Match method—developed by Lorna Curran—which involves finding pairs of matching cards and aims to improve students' knowledge (Dewi et al., 2025). According to Daeng et al. (2022), the strength of the Make a Match method lies in its ability to increase learning activity, comprehension, and students' confidence in presenting their work. Other advantages include creating an enjoyable learning atmosphere, improving memory retention, and promoting active student participation (Sundu et al., 2025). Therefore, the Make a Match method can serve as an effective alternative for enhancing students' cognitive abilities (Putri et al., 2025).

Dewi et al. (2025) also emphasized that this model encourages students to collaborate in the learning process through engaging play activities. Similarly, Sundu et al. (2025) found that this method fosters teamwork, enthusiasm, and student engagement during the card-matching process. Based on its proven effectiveness in enhancing knowledge and participation, the Make a Match method holds strong potential for application in patient safety education (Hasni & Amelia, 2024).

Patient safety refers to a system designed to ensure that patient care is delivered as safely as possible (Chavez-Maisterra et al., 2024). In addition to patient safety standards, the implementation of patient safety goals is also crucial for improving the quality of healthcare services, focusing on solutions to patient safety issues (Hosseinpour & Keshmiri, 2025). The patient safety system serves as a preventive measure aimed at reducing hospital-related injuries, a shared responsibility that also involves nursing students participating in clinical practice as future healthcare professionals (Chance, 2025).

Method

Study Design

This study employed a quantitative approach using a pre-experimental design with a one-group pretest–posttest format. The population consisted of undergraduate nursing students who had completed the Basic Nursing Practice (BNP) course. A total of 69 respondents were selected using purposive sampling. The research instrument was a patient safety goals knowledge questionnaire developed by Yulianti (2023), consisting of 34 statements.

The research procedure included four stages: (1) administering a pretest, (2) delivering educational sessions by a qualified instructor, (3) conducting learning evaluations using the *Make a Match* method, and (4) administering a posttest. Data were analyzed using the Wilcoxon signed-rank test with a significance level of 0.05. This study obtained ethical approval from the Health Research Ethics Committee of the Dharma Husada College of Health Sciences (STIKes Dharma Husada).

Results

Based on the research findings and discussion regarding the effect of patient safety goals education on nursing students' knowledge.

Table 1. Frequency Distribution of Undergraduate Nursing Students' Knowledge Before dan after Receiving Student-Centered Learning on Patient Safety Goals

Variabel	n	%
Knowledge Before the Educational Intervention		
Poor	6	8.7%
Fair	44	63.8%
Good	19	27.5%
Knowledge After the Educational Intervention		
Poor	0	0%
Fair	6	8.7%
Good	63	91.3%

(Source: Primary Data, 2025)

Based on the results presented in Table 1, prior to the educational intervention, most respondents demonstrated a moderate level of knowledge, with 44 students (63.8%) categorized as having fair knowledge, 19 students (27.5%) as having good knowledge, and only 6 students (8.7%) as having poor knowledge.

After the implementation of the patient safety goals education using the *Make a Match* method, there was a significant improvement in students' knowledge levels. A total of 63 respondents (91.3%) were categorized as having good knowledge, while only 6

respondents (8.7%) remained in the fair category. These findings indicate that the *Make a Match* educational method effectively enhanced nursing students' understanding of patient safety goals.

Table 2. The Effect of Student-Centered Learning on Patient Safety Goals on Undergraduate Nursing Students' Knowledge Using the *Make a Match* Method

	n	Mean rank	Sum of ranks	Z	p-value
Negative ranks (Posttest < Pretest)	0	0.00	0.00		
Positive Ranks (Posttest > Pretest)	50	25.50	1275.00	-7.071	0.000
Ties (Posttest = Pretest)	19	-	-		

(Source: Primary Data, 2025)

Based on Table 2, the results of the Wilcoxon test showed that the mean knowledge score before the patient safety goals education was 25.50. After the intervention, 50 respondents demonstrated improved knowledge, while 19 respondents showed no change in their knowledge levels before and after the educational session. The statistical test yielded a Z value of -7.071 with a significance level of $p = 0.000$ (< 0.05), indicating that there was a significant effect of the *Make a Match* educational method on nursing students' knowledge of patient safety goals.

Discussion

Based on the research findings, there was a significant 70% increase in nursing students' knowledge after receiving education on the six patient safety goals using the *Make a Match* method. This result indicates that the *Make a Match* method is effective in enhancing students' understanding. These findings align with the theory of cooperative learning, which posits that methods involving interactive activities, discussions, and collaboration can increase learner engagement and comprehension (Slavin, 2020).

The study by Daeng et al. (2022) also reported a significant improvement in knowledge following the implementation of the *Make a Match*

intervention. Similarly, Lusiani et al. (2024) found that the *Make a Match* method was more effective than the lecture method in improving students' understanding. Furthermore, Dewi et al. (2025) stated that interactive learning enhances learners' memory retention and fosters greater enthusiasm in understanding the material. These findings suggest that the increase in average knowledge in this study may be attributed to students' active engagement during the learning process using the *Make a Match* method.

The highest score in this study was observed in Patient Safety Goal (PSG) 1, which concerns accurate patient identification. This indicates that students demonstrated a strong understanding of patient identification procedures. During the *Make a Match* evaluation, students were able to correctly identify patient wristband colors, the timing of wristband application and removal, and the data that must be verified before providing nursing care. This result is consistent with the World Health Organization (WHO) and Joint Commission International (JCI, 2023) standards, which emphasize the importance of using at least two patient identifiers (full name and date of birth) prior to any clinical procedure to prevent patient misidentification. Strong knowledge of PSG 1 is crucial, as patient identification errors are reported as one of the leading causes of sentinel events in hospitals (De Rezende et al., 2021).

High scores were also noted for PSG 3, which focuses on improving the safety of high-alert medications. Students had previously acquired this knowledge through pharmacology courses, further reinforced by their clinical practice experiences, leading to better understanding of medication safety. This finding aligns with Kim & Shin (2025), who reported that nursing students trained on the "six rights" of medication administration demonstrated higher compliance in medication practice compared to those who only received traditional instruction.

The more frequently the *Make a Match* method is applied in the learning process, the greater the improvement in students' comprehension and learning motivation. This has a positive impact on the enhancement of both their knowledge and skills, particularly concerning patient safety goals. Consistent with this study, Daeng et al. (2022) confirmed that the *Make a Match*

method consistently improves students' understanding, while Lusiani et al. (2024) also reported a significant influence of this method on knowledge improvement.

Therefore, the *Make a Match* method can be considered an effective alternative learning strategy to enhance students' cognitive abilities. As such, integrating *Make a Match* as an innovative learning approach plays a strategic role in preparing competent nursing students who can contribute to improving healthcare quality and ensuring patient safety in clinical practice.

Conclusion

The results of this study showed that before receiving education on patient safety goals using the *Make a Match* method, most nursing students demonstrated a moderate level of knowledge (63.4%). After the educational intervention, there was a significant improvement, with 91.3% of students achieving a good level of knowledge. Statistical analysis revealed a significant effect of the *Make a Match* educational method on improving students' knowledge ($p = 0.000$; $p < 0.05$).

Therefore, the *Make a Match* method is recommended as an effective active learning strategy to enhance nursing students' understanding of patient safety goals. This method can be routinely implemented in the learning process to support the improvement of educational quality and patient safety in the future. Further application may include the structured integration of this method into the curriculum, training programs for faculty and clinical instructors, its implementation in simulation and clinical practice, periodic evaluation of its effectiveness, and the development of interprofessional learning approaches to ensure a more comprehensive understanding among students.

Conflict of Interests Statement

The author declares that there are no conflicts of interest related to the publication of this article.

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