

Effect of a Decision-Making Training Program on Nurses' Professional Autonomy at King Faisal Specialist Hospital and Research Centre, Saudi Arabia

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Abstract

Background: Decision-making is a fundamental component of nursing practice that significantly influences patient care and outcomes. It is closely associated with professional autonomy and the quality of nursing care. This study aimed to assess the effect of a decision-making training program on nurses' professional autonomy.

Methods: A quasi-experimental pretest–posttest design was used. The study included 105 nurses working in the inpatient departments of King Faisal Specialist Hospital and Research Centre in Riyadh, Saudi Arabia. Data were collected using the Decision-Making Knowledge Questionnaire and the Professional Autonomy Questionnaire before and immediately after the implementation of the training program. The program consisted of five sessions covering theoretical and practical components of decision-making. **Results:** Nurses' total decision-making knowledge improved significantly following the training program. The percentage of nurses with a high knowledge level increased from 45.7% before the intervention to 78.1% after the intervention, whereas the percentage with a low knowledge level decreased from 41.9% to 13.3% ($\chi^2 = 25.137$, $p < 0.001$). Professional autonomy also improved significantly; the percentage of nurses with low professional autonomy decreased from 75.2% to 38.1%, while the percentage with high professional autonomy increased from 3.8% to 25.7% ($\chi^2 = 33.819$, $p < 0.001$). A statistically significant positive correlation was found between total decision-making knowledge and professional autonomy scores both before ($r = 0.326$, $p = 0.001$) and after the intervention ($r = 0.706$, $p < 0.001$), indicating that the association became stronger following the training program. **Conclusions and Recommendations:** The decision-making training program was associated with significant improvements in nurses' decision-making knowledge and professional autonomy. Strengthening decision-making competencies may promote greater professional autonomy and contribute to improving nursing care and patient outcomes. Healthcare institutions should consider incorporating structured decision-making training into continuing professional development programs for nurses.

Keywords: decision-making, nurses, professional autonomy, training program.

Introduction

Clinical decision-making is a fundamental component of nursing practice. It involves assessing a patient's condition, interpreting available information, identifying care priorities, and selecting appropriate interventions based on the best available evidence. Effective decision-making enables nurses to respond proactively to patients' needs and contributes to safe, timely, and high-quality care. Nurses also participate in decisions related to clinical care, policy development, and organizational operations, highlighting the importance of their role in healthcare decision-making. Consequently, nurses' decision-making abilities can directly influence the quality of care and patient outcomes (Saban & Dubovi, 2025).

Nurses frequently encounter complex and rapidly changing clinical situations that require timely and effective decisions. To manage such situations successfully, they must integrate clinical knowledge and experience, assess patients' needs, evaluate available evidence, and collaborate with multidisciplinary healthcare teams. Effective decision-making can improve patient safety, patient satisfaction, and health outcomes; therefore, strengthening this competence remains a major priority in nursing practice and education (Bustin et al., 2024).

Nurses' decision-making processes are influenced by both individual and organizational factors. Individual factors include educational level, clinical experience, self-confidence, and intuitive ability. Experienced nurses may rely more on clinical intuition and pattern recognition developed through repeated practice, whereas less experienced nurses may depend more heavily on established protocols and guidelines. Organizational factors include resource availability, hospital policies, interprofessional collaboration, leadership support, and the overall work environment (Yücel et al., 2024). A supportive organizational culture that promotes open communication and teamwork can facilitate sound decision-making. Conversely, high patient volumes, time constraints, inadequate staffing, and heavy workloads may result in rushed or suboptimal decisions, potentially compromising patient safety and care quality (İlaslan et al., 2023).

Nurses' decision-making abilities can be strengthened through continuing education, seminars, workshops, advanced courses, evidence-based practice, and mentorship. These strategies help nurses remain current with the best available evidence, integrate research findings into clinical practice, and benefit from the guidance of experienced colleagues. Structured training can also

provide opportunities to develop problem-solving, prioritization, critical-thinking, and shared decision-making skills, thereby enhancing nurses' competence and confidence in clinical situations (Ayed et al., 2023).

Professional autonomy refers to nurses' authority and ability to make independent and accountable decisions about patient care based on their knowledge, education, clinical judgment, and professional expertise. It encompasses clinical autonomy, which enables nurses to assess patients and make decisions regarding nursing care, and autonomy over nursing practice, which reflects nurses' ability to participate in decisions related to organizational policies and procedures. Professional autonomy is a core characteristic of nursing practice and promotes accountability and responsibility among nurses (Pursio et al., 2021).

Professional autonomy enables nurses to act in patients' best interests and provide care that is safe, appropriate, efficient, and individualized. Higher levels of professional autonomy have been associated with improved patient outcomes, better care quality, greater job satisfaction, and increased nurse retention. When nurses have sufficient authority to make patient-care decisions without unnecessary restrictions, they are more likely to use critical thinking and clinical judgment effectively (Rouhi-Balasi et al., 2020). In contrast, rigid hierarchical structures and limited participation in decision-making may restrict nurses' ability to practice autonomously.

Healthcare organizations can promote professional autonomy by establishing a collaborative culture in which nurses actively participate in decisions concerning patient care and organizational policies. Regular interdisciplinary meetings that recognize nurses' contributions can support this involvement (Kim et al., 2022). Continuing education and professional development can further expand nurses' knowledge and confidence in clinical decision-making. Mentorship programs, in which experienced nurses guide less experienced colleagues, may also build supportive professional networks and strengthen autonomous practice. This is particularly important because higher educational preparation has been associated with greater professional autonomy among nurses (Both-Nwabuwe et al., 2020).

Decision-making and professional autonomy are closely related because nurses require adequate knowledge, confidence, and clinical judgment to exercise autonomy safely and accountably. Therefore, a structured decision-making training program may improve nurses' decision-making knowledge and

strengthen their professional autonomy. Evaluating the effect of such a program can provide evidence to guide nursing professional-development initiatives and support improvements in the quality of care within the study setting (Balasi et al., 2024).

Aim of the Study

The study aimed to evaluate the effect of a decision-making training program on nurses' knowledge regarding decision-making and their professional autonomy at King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia.

Research hypotheses

The following research hypotheses were formulated:

H1: Nurses' mean knowledge scores regarding decision-making would be significantly higher after the implementation of the training program than before its implementation.

H2: Nurses' mean professional autonomy scores would be significantly higher after the implementation of the training program than before its implementation.

Methods

Study Design

This study used a quasi-experimental pretest–posttest design. The nurses were divided into small groups based on their availability and workload to facilitate the implementation of the training program.

Study Setting

The study was conducted in the inpatient departments of King Faisal Specialist Hospital and Research Centre in Riyadh, Saudi Arabia. King Faisal Specialist Hospital and Research Centre is a tertiary/quaternary referral center with a capacity exceeding 800 beds, providing advanced care within an integrated educational and research environment. The hospital is an independent, nonprofit institution following a Royal Decree that transformed its organizational structure. It holds accreditation from the Joint Commission International as an academic medical center and has received Magnet recognition for nursing excellence.

King Faisal Specialist Hospital and Research Centre is one of the largest academic medical centers in the Kingdom and serves as a national and regional referral center for organ transplantation. It hosts internationally recognized programs for liver, kidney, pancreas, lung, heart, small-bowel, and pediatric transplantation. The hospital also serves as a referral center for donor

assessment, immunological testing, and complex transplant procedures. Supported by advanced critical care units, specialized surgical teams, and reference laboratories, the hospital has successfully performed thousands of transplant procedures, positioning it at the forefront of organ transplantation centers in the Middle East.

Participants

The study included nurses who provided patient care in all the selected inpatient departments, had a minimum of one year of work experience, and were willing to participate in the study. The total sample included 105 nurses. A pilot study was conducted with 10% of the study participants, representing 11 nurses. These nurses were excluded from the main study.

Data Collection Tools

The current study used two instruments for data collection.

Tool 1: Decision-Making Knowledge Questionnaire

Part I: Personal Data

This part included the personal characteristics of the studied staff nurses, such as gender, age, marital status, educational qualifications, and years of experience.

Part II: Decision-Making Knowledge Questionnaire

The Decision-Making Knowledge Questionnaire was developed by the investigator based on a review of the related literature (Sist & Palese, 2020). It was used to assess nurses' knowledge regarding decision-making. The questionnaire consisted of a number of true/false and multiple-choice questions related to staff nurse competencies. Each correct answer was scored as "1," whereas each incorrect answer was scored as "0." Based on a predetermined cut-off point, the total scores of the Decision-Making Knowledge Questionnaire were classified into three categories as follows:

- Low knowledge level: <60% of the total score.
- Moderate knowledge level: 60–75% of the total score.
- High knowledge level: >75% of the total score.

Tool 2: Professional Autonomy Questionnaire

The Professional Autonomy Questionnaire was developed by Blegen et al. (1993) to assess nurses' perspectives regarding professional autonomy. The questionnaire consisted of 42 items divided into two dimensions: decision-making regarding ward affairs, which included 21 items, and decision-making

involving patient care, which included 21 items. A five-point Likert scale was used for scoring as follows: always = 5, often = 4, sometimes = 3, rarely = 2, and never = 1. Based on a predetermined cut-off point, the total scores of the Professional Autonomy Questionnaire were classified into three categories as follows:

- Low professional autonomy level: <60% of the total score.
- Moderate professional autonomy level: 60–75% of the total score.
- High professional autonomy level: >75% of the total score.

Validity and Reliability

The instruments were evaluated for face and content validity by five experts, and the required modifications were made accordingly. The reliability of the instruments was evaluated using Cronbach's alpha in the Statistical Package for the Social Sciences (SPSS), version 23. Reliability was assessed by determining the extent to which items reflecting the same construct yielded consistent results. The Cronbach's alpha coefficients for the Decision-Making Knowledge Questionnaire and the Professional Autonomy Questionnaire were 0.89 and 0.93, respectively. These values indicated that both questionnaires had strong internal consistency.

Pilot Study

A pilot study was conducted with 10% of the study participants, representing 11 nurses. The pilot study aimed to assess the applicability and clarity of the instruments and determine the time required to complete the questionnaires. The nurses who participated in the pilot study were excluded from the main study.

Data Collection Process and Training Program

An official letter requesting permission to conduct the study was submitted by the Faculty of Nursing at Mansoura University to the Director of King Faisal Specialist Hospital. Official written permission to conduct the study was obtained from the hospital director after the purpose of the study had been explained. Data were collected from staff nurses during the morning, afternoon, and night shifts according to their availability. The Decision-Making Knowledge Questionnaire was administered before the implementation of the training program to assess nurses' baseline knowledge regarding decision-making and was administered again immediately after the completion of the program.

The Professional Autonomy Questionnaire was also administered before the implementation of the training program and immediately after its completion.

The program consisted of two main parts. The first was a theoretical part that covered the knowledge and skills required to build decision-making capacity. The second was a practical part that included activities and assignments designed to enhance nurses' decision-making skills. After the baseline questionnaires had been completed, the investigator initiated the training program. The program was implemented from the beginning of December 2024 to the end of June 2025.

The staff nurses were divided into three groups based on their availability and workload. The training program was implemented during the morning and evening shifts three days per week. The program took eight hours and was delivered through five sessions for each group, with each session lasting two hours. The investigator was available throughout the data collection process to provide clarification when required. The data collected before the implementation of the program constituted the pretest data. Based on the information obtained during this phase and a review of the relevant literature, the investigator developed the decision-making training program for the staff nurses.

Various teaching methods were used, including brainstorming, lectures, videos, group discussions, and a written handout prepared by the investigator and distributed to the participants. Following the training program, the investigator monitored the participants' progress by comparing the posttest results with the baseline findings obtained during the pretest assessment using the same data collection instruments.

Statistical Analysis

The collected data were organized, tabulated, and statistically analyzed using the Statistical Package for the Social Sciences version 25 (SPSS Inc., Chicago, IL, USA). The assumption of normality was met. Categorical variables were expressed as frequencies and percentages, whereas continuous variables were expressed as means and standard deviations.

A two-way analysis of variance (ANOVA) was performed to examine differences across repeated measurements for parametric continuous variables. The Friedman test was performed to assess differences across repeated measurements involving ordinal variables. An independent-samples t-test was used to assess differences between two means of continuous variables, whereas a one-way ANOVA was used to evaluate differences among more than two means of continuous variables. Pearson's correlation coefficient was used to assess

correlations between two continuous variables. Statistical significance was considered at p-values of <0.01 or <0.05.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing at Mansoura University. Permission to collect data was also obtained from the selected hospital. The agreement of staff nurses who met the inclusion criteria to complete the questionnaires and participate in the study was considered written consent. The investigator explained the study's aim to all participants before data collection. The anonymity and confidentiality of participants' data were fully ensured. Participation was voluntary, and the participants were informed of their right to withdraw from the study at any time.

Results

Table 1 presents the personal characteristics of the studied nurses. The study included 105 nurses, with a mean age of 27.53 ± 4.66 years and an age range of 20–40 years. Most participants were aged 20–25 years (41.0%) or >25–30 years (39.0%), while 20.0% were aged >30–40 years. Female nurses constituted 64.8% of the sample. More than half of the nurses were married (57.1%), whereas 40.0% were single. Most participants held a BSc in Nursing (93.3%). The mean duration of professional experience was 4.71 ± 2.77 years, with a range of 1–13 years. Nearly all nurses had less than 10 years of professional experience (93.3%).

Table 1. Personal characteristics of the studied nurses (n = 105)

Personal characteristics	The examined nurses (number=105)
Age years	
20-25	43 (41.0%)
>25-30	41 (39.0%)
>30-40	21 (20.0%)
Range	20-40
Mean $\pm$SD	27.53 $\pm$ 4.66
Sex	
Male	37 (35.2%)
Female	68 (64.8%)
Marital status	
Single	42 (40.0%)
Married	60 (57.1%)
Widow	2 (1.9%)

Divorced	1 (1.0%)
Educational qualification	
Diploma in nursing	3 (2.9%)
BSc in nursing	98 (93.3%)
MSc in nursing	4 (3.8%)
Experience years	
1-<5	52 (49.5%)
5-<10	46 (43.8%)
10-13	7 (6.7%)
Range	1-13
Mean $\pm$SD	4.71 $\pm$ 2.77

Figure 1 demonstrates a statistically significant improvement in nurses' total decision-making knowledge following the implementation of the training program. Before the intervention, 41.9% of the nurses had a low knowledge level, compared with 13.3% after the intervention. In contrast, the proportion of nurses with a high knowledge level increased markedly from 45.7% before the intervention to 78.1% after the intervention. This change in knowledge levels was statistically significant ($\chi^2 = 25.137$, $p < 0.001$).

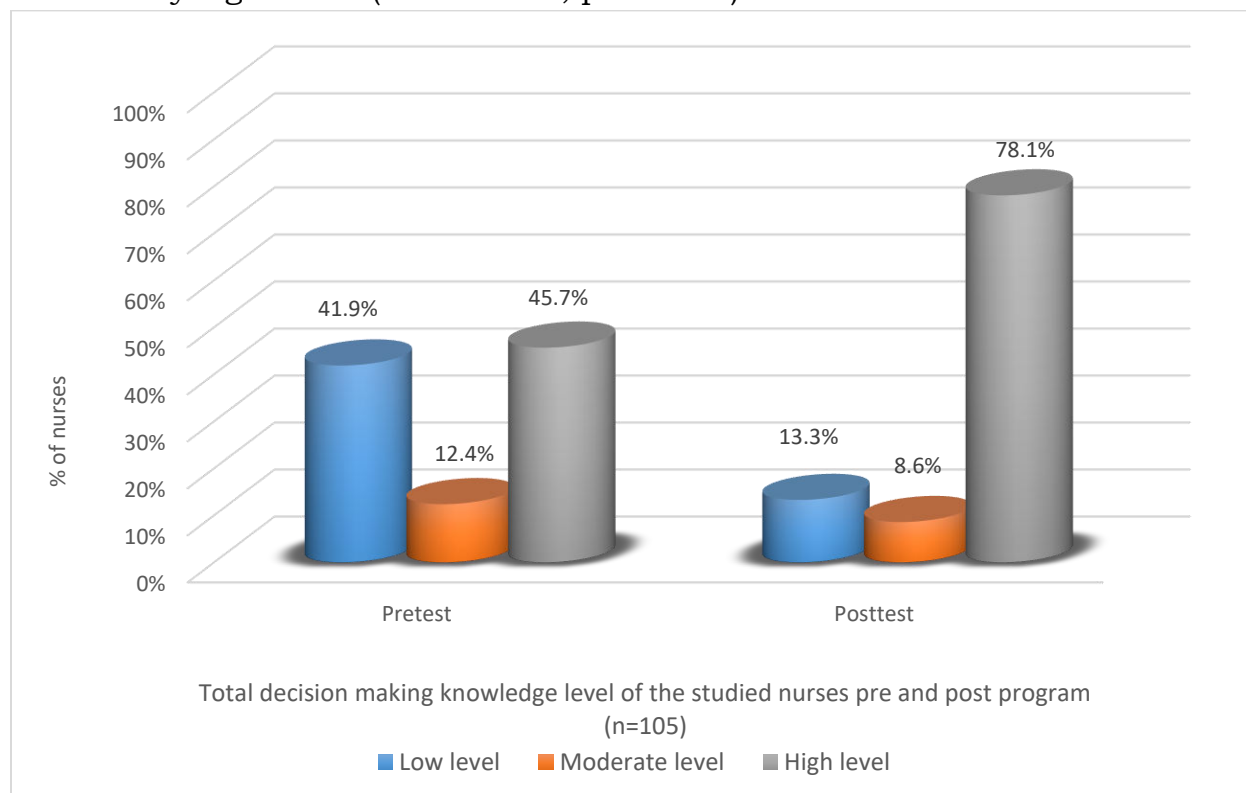


Figure 1. Total decision-making knowledge levels of the studied nurses before and after the implementation of the training program (n = 105)

Figure 2 illustrates a statistically significant improvement in nurses' perceptions of their professional autonomy following the implementation of the training program. Before the intervention, 75.2% of the nurses reported a low level of professional autonomy; this percentage decreased to 38.1% after the intervention. In contrast, the percentage of nurses reporting a high level of professional autonomy increased from 3.8% before the intervention to 25.7% after the intervention. The change in professional autonomy levels was statistically significant ($\chi^2 = 33.819$, $p < 0.001$).

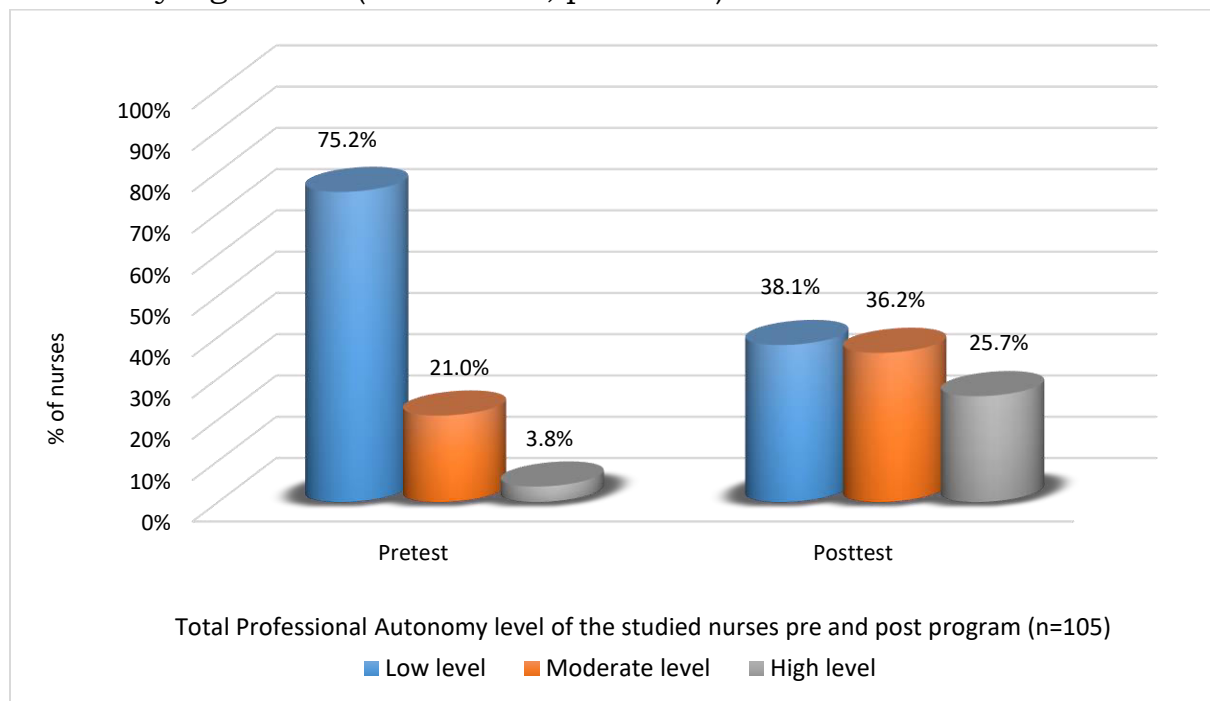


Figure 2. Total professional autonomy levels of the studied nurses before and after the implementation of the training program (n = 105)

N.B. Professional Autonomy level was classified into: low level (<60% of total scores), Moderate level (60-75% of total scores), and high level (>75% of total scores).

Table 2 demonstrates a statistically significant relationship between total decision-making knowledge levels and perceived professional autonomy levels both before and after the implementation of the training program. At pretest, professional autonomy levels differed significantly across the decision-making knowledge categories ($\chi^2 = 35.475$, $p < 0.001$), with low autonomy predominating among nurses with moderate and high knowledge levels. Following the intervention, a statistically significant relationship remained ($\chi^2 = 25.633$, $p < 0.001$), accompanied by a shift toward higher professional autonomy among nurses with high decision-making knowledge.

Table 2. Relationship between total decision-making knowledge levels and total perceived professional autonomy levels among the studied nurses before and after the implementation of the training program (n = 105)

Level of Professional Autonomy pre and post program	Level of total Decision-Making Knowledge of the studied nurses (n=105)			x ² test	P value
	Low level	Moderate level	High level		
•Pretest	(n=44)	(n=13)	(n=48)		
Low level	13 (29.5%)	11 (84.6%)	40 (83.3%)	35.475	0.0001*
Moderate level	25 (56.8%)	0 (0%)	8 (16.7%)		
High level	6 (13.6%)	2 (15.4%)	0 (0%)		
•Posttest	(n=14)	(n=9)	(n=82)		
Low level	3 (21.4%)	3 (33.3%)	54 (65.9%)	25.633	0.0001*
Moderate level	11 (78.6%)	6 (66.7%)	16 (19.5%)		
High level	0 (0%)	0 (0%)	12 (14.6%)		

*Statistically significant ($P < 0.05$)

Figures 3 and 4 illustrate statistically significant positive correlations between total decision-making knowledge scores and professional autonomy scores both before the intervention ($r = 0.326$, $p = 0.001$) and after the intervention ($r = 0.706$, $p < 0.001$). The strength of the positive correlation increased markedly following the implementation of the training program.

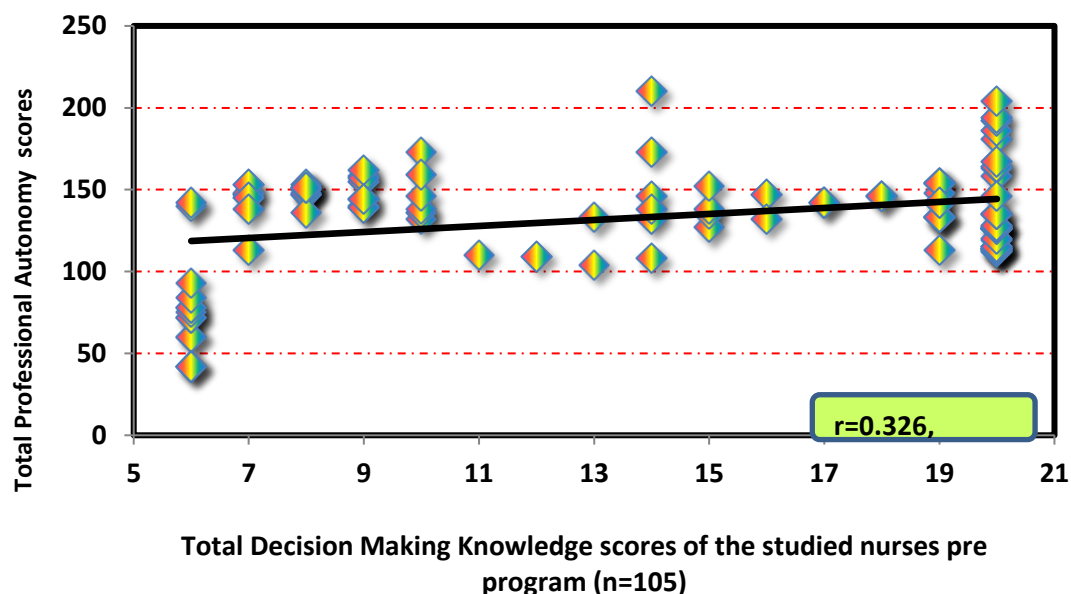


Figure 3. Correlation Between Total Scores of Decision-Making Knowledge and Professional Autonomy of the Studied Nurses Pre-implementing Training Program

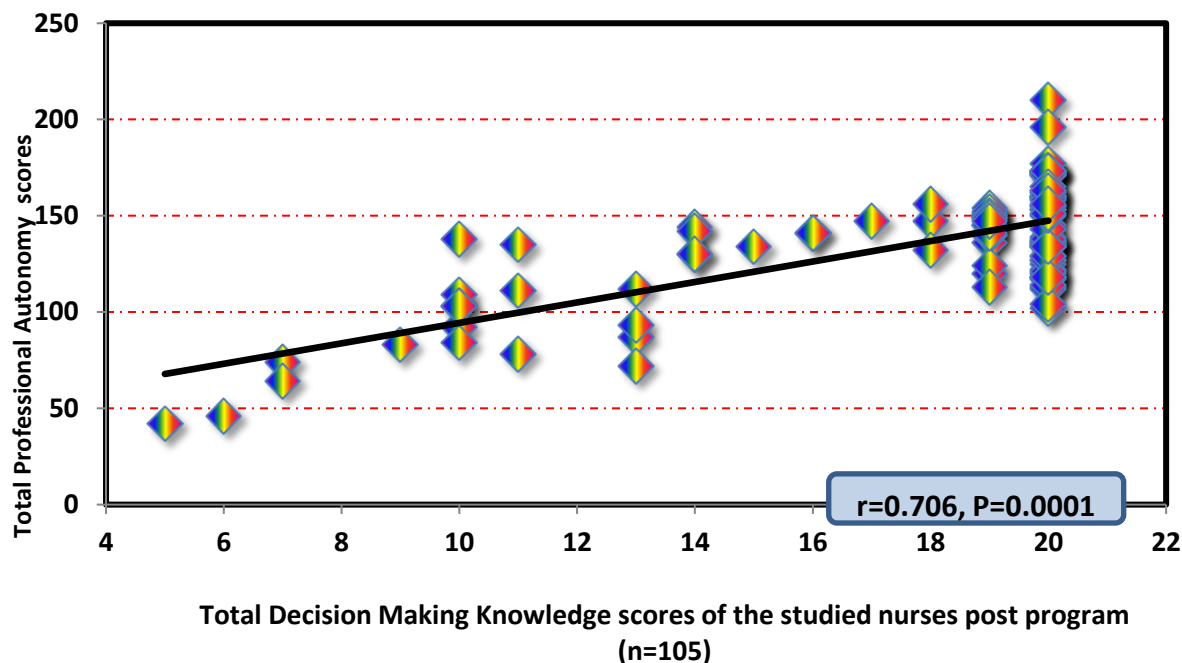


Figure 4. Correlation Among Total Scores of Decision-Making Knowledge and Professional Autonomy of the Studied Nurses Post Implementing a Training Program

Table 3 demonstrates that total decision-making knowledge scores differed significantly according to age, sex, marital status, educational qualification, and years of professional experience at pretest ($p < 0.05$). Following the intervention, statistically significant differences in knowledge scores remained according to age ($p = 0.030$), sex ($p < 0.001$), and years of professional experience ($p = 0.013$). However, differences according to marital status and educational qualification were no longer statistically significant ($p > 0.05$). Decision-making knowledge scores increased across all demographic subgroups following the implementation of the training program.

Table 3. Total decision-making knowledge scores according to the personal characteristics of the studied nurses before and after the implementation of the training program (n = 105)

Personal characteristics	No	Total Decision-Making Knowledge of the examined nurses prior to and following program (n=105)	
		Pretest	Posttest
Age years			
20-25	43	129.08±34.22	140.18±29.95
>25-30	41	146.19±17.64	154.50±12.02
>30-40	21	141.31±8.18	163.00±18.19

Test		7.117	
P value		0.030*	
Sex			
Male	37	150.32±22.46	156.65±34.78
Female	68	120.40±28.60	145.18±20.07
Test		2.940	20.025
P value		0.046*	0.0001*
Marital status			
Single	42	146.05±18.70	148.88±34.82
Married	60	125.18±34.50	140.18±23.95
Widow	2	142.00±8.48	154.50±12.02
Divorced	1	42.00±0.00	163.00±0.00
Test		8.346	7.154
P value		0.039*	0.067
Educational qualification			
Diploma in nursing	3	42.00±0.00	161.33±4.72
BSc in nursing	98	137.62±26.03	139.25±29.96
MSc in nursing	4	89.50±34.85	138.25±15.58
Test		16.652	4.326
P value		0.0001*	0.115
Experience years			
1-<5	52	121.93±22.70	154.50±22.10
5-<10	46	151.50±20.39	163.00±19.24
10-13	7	69.14±35.38	154.50±12.05
Test		16.933	9.338
P value		0.0001*	0.013*

*Statistically significant ($P < 0.05$)

Test used Z value or χ^2 value; data are represented as Mean $\pm$ SD

Discussion

This study aimed to assess the effect of a decision-making training program on nurses' professional autonomy at King Faisal Specialist Hospital, Saudi Arabia. The findings demonstrated a statistically significant improvement in nurses' decision-making knowledge following the implementation of the training program. This improvement reflected the effectiveness of structured educational

interventions in enhancing the cognitive and analytical abilities required by nurses to make informed clinical decisions.

Farzaneh et al. (2023) demonstrated that an SBAR-based training program significantly improved clinical decision-making and self-efficacy among nursing students. This finding was consistent with and supported the findings of the present study, indicating that structured educational interventions can positively affect decision-making abilities. Similarly, Bos–van den Hoek et al. (2023) observed significant improvements in decision-making abilities among physicians and nurses who participated in a blended learning program. Their findings highlighted the effectiveness of targeted training methods in enhancing both knowledge and practical decision-making outcomes.

Furthermore, Chen et al. (2021) found statistically significant improvements in the clinical decision-making abilities of nursing students who participated in specialized training programs. This finding reaffirmed the importance of educational interventions in developing higher-level cognitive and analytical abilities among nursing students. The findings of the present study were also supported by the systematic review conducted by Kaşıkçı and Yıldırım (2025). The authors concluded that educational interventions, including workshops, simulations, and case-based learning, were effective in improving ethical and clinical decision-making skills among nursing students. This finding was consistent with the improvement in decision-making knowledge observed following the training program in the present study.

The present study also demonstrated a statistically significant difference in nurses' professional autonomy before and after the implementation of the training program. This outcome could be related to the effect of structured educational interventions on nurses' understanding of professional autonomy and their ability to exercise it. The statistically significant improvement in the dimensions of professional autonomy demonstrated the potential of training programs to enhance nurses' knowledge, confidence, and ability to make independent professional decisions.

These findings were consistent with previous studies demonstrating that continuing education and professional development programs can strengthen nurses' autonomy by providing them with updated knowledge, decision-making frameworks, and the practical skills required for independent practice (Jaeken et al., 2024). Consequently, the observed improvement may reflect both the effectiveness of the training content and its role in enabling nurses to participate

actively in clinical decision-making, ultimately contributing to improved patient care quality and professional practice standards.

The findings were also consistent with those of Akbaş Uysal and Ekiz (2025), who emphasized that professional autonomy is an essential component of a healthy work environment and improves nurses' ability to make independent decisions. Their study emphasized that interventions such as training programs can positively influence nurses' perceptions of autonomy by equipping them with the knowledge and skills required to exercise professional judgment. Although the study conducted by Demir (2023) was undertaken in an educational environment rather than a healthcare setting, indicating some contextual differences, its findings were generally consistent with those of the present study. Collectively, these findings support the potential of training programs to improve nurses' professional autonomy.

These findings were further supported by studies emphasizing that professional autonomy can be improved through targeted training initiatives. Habib Mohamed et al. (2023) found that educational programs emphasizing autonomy had a significant effect on staff nurses' organizational commitment and sense of professional independence. Similar findings were also reported by Alruwaili and Abuadas (2023).

The present study revealed statistically significant positive correlations between total decision-making knowledge and professional autonomy scores both before and after the intervention. The correlation became markedly stronger following the completion of the training program. This finding supported the view that nurses with greater decision-making knowledge may be more confident and competent in exercising their professional autonomy. The significant associations observed before and after the training program indicated that improving nurses' decision-making abilities was associated with improvements in their perceptions and practice of professional autonomy in clinical settings.

This finding was consistent with Sarmadi et al. (2025), who identified a statistically significant positive association between decision-making competence and professional autonomy among intensive care unit nurses. Their findings indicated that higher levels of professional autonomy were associated with improved decision-making abilities, highlighting the interdependent nature of these two constructs. Conversely, the present finding was partially inconsistent with Habib Mohamed et al. (2023), who reported that although educational programs improved nurses' autonomy, the relationship between

decision-making knowledge and professional autonomy was not always statistically significant. Organizational policies and managerial support played a more prominent role in shaping autonomous practice. This discrepancy may be attributed to differences in study design, workplace context, and the extent of institutional support available following the training programs.

The present study found that total decision-making knowledge scores were significantly associated with age, sex, educational qualification, marital status, and years of professional experience at pretest. Following the intervention, significant differences in knowledge scores remained according to age, sex, and years of professional experience, whereas differences according to marital status and educational qualification were no longer statistically significant. Decision-making knowledge scores increased across all demographic subgroups following the implementation of the training program.

The findings of Atalla et al. (2025) were partially inconsistent with those of the present study. Atalla et al. reported that demographic characteristics, including sex, age, educational level, and years of experience, were not significant predictors of nurses' clinical reasoning competency. The present findings were also partially inconsistent with Paiva et al. (2025), who reported that decision-making was influenced mainly by nurses' personality traits rather than by isolated demographic characteristics such as sex. Their structural equation modeling approach emphasized the complex and multidimensional nature of decision-making and suggested that demographic variables alone may not adequately explain variations in decision-making abilities.

Similarly, the systematic review and meta-analysis conducted by Zainal et al. (2025) revealed substantial heterogeneity in the relationships between demographic characteristics and clinical decision-making. This suggested that factors such as age, education, sex, and professional experience did not consistently predict decision-making abilities across different studies. Previous research indicated that decision-making is influenced by a broader combination of cognitive, personal, and contextual factors rather than demographic characteristics alone. Nevertheless, the present study identified sex as a significant factor associated with decision-making knowledge.

Implications of the Study

The findings of the present study have important implications for nursing education, nursing practice, and healthcare organizations. First, the significant improvements in decision-making knowledge and professional autonomy

demonstrated the effectiveness of structured training programs in enhancing nurses' professional competencies. Healthcare institutions should incorporate decision-making training into continuing professional development programs to strengthen nurses' analytical abilities and improve their confidence in clinical practice.

Second, the strong positive correlation between decision-making knowledge and professional autonomy suggested that empowering nurses through knowledge enhancement can support autonomous professional practice. Nursing administrators should establish supportive work environments that allow nurses to exercise independent clinical judgment and participate actively in decision-making processes.

Finally, undergraduate and postgraduate nursing education programs should incorporate structured modules focusing on clinical reasoning, ethical decision-making, and professional autonomy to adequately prepare nurses for the complexity of healthcare practice. Policymakers and hospital leaders should also recognize that investing in professional development programs can improve individual performance and contribute to enhanced organizational outcomes, including greater job satisfaction, improved retention rates, and higher-quality patient care.

Study Limitations and Recommendations

Several limitations should be acknowledged. First, the use of a quasi-experimental design without a control group limited the ability to establish causal relationships with certainty. Second, the study was conducted at a single tertiary healthcare facility, which may limit the generalizability of the findings to other healthcare settings or geographical regions. Third, the outcomes were assessed only over a relatively short period, and the long-term sustainability of the training program's effects was not evaluated.

Longitudinal studies are therefore needed to examine the long-term effects of decision-making training programs on professional autonomy and clinical outcomes. To address implementation challenges, healthcare institutions should incorporate ongoing interventions focusing on decision-making skills into mandatory continuing education programs. Further research is also needed to examine the relationships among organizational characteristics, leadership styles, and professional autonomy to develop comprehensive strategies for empowering nurses.

Conclusions

Based on the findings of the present study, the training program had a statistically significant positive effect on nurses' decision-making knowledge and professional autonomy. Decision-making knowledge scores increased significantly from pretest to posttest, indicating that the program was effective in enhancing nurses' cognitive understanding and analytical abilities related to clinical decision-making.

Similarly, all dimensions of professional autonomy demonstrated statistically significant improvements following the implementation of the training program. The increase in total professional autonomy scores reflected greater confidence, independence, and professional control in nursing practice. Furthermore, the statistically significant positive correlations between decision-making knowledge and professional autonomy before and after the intervention indicated that improved decision-making knowledge was associated with enhanced professional autonomy.

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Data Availability

The quantitative datasets generated and analyzed during this study are available from the corresponding author upon reasonable request.

Ethics Approval and Consent to Participate

All study procedures were conducted in accordance with applicable laws and ethical guidelines. Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing, Mansoura University. The study was conducted in accordance with the Declaration of Helsinki. Informed consent was obtained from all participants before data collection.

Consent for Publication: Not applicable.

Competing Interests

The authors declare that they have no competing interests.

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