

Effect of an Educational Program of Negotiation Skills among Nurses on Conflict Resolution in Intensive Care Units: A Quasi Experimental Study

Salman Sultan Alosaimi¹, Wafaa Fathi Sleem²,
Maysa Fekry Ahmed³

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Abstract:

Background: Conflict is the main cause of poor collaboration between nurses and physicians, and negotiation is the best way to resolve conflicts between health care professionals. Negotiation is the best effective approach to conflict control. It is significant to nurses in health care settings to recognize different negotiation styles; therefore, they can interact properly through diverse conditions of conflict in the organization. **Aim:** To evaluate the effect of an educational program of negotiation skills among nurses on conflict resolution in intensive care units at King Fahd Medical City, Riyadh, Saudi Arabia **Method:** Quasi experimental research design, in all intensive care units at King Fahd Medical City, Riyadh, on 114 nurses using three tool for data collection namely Negotiation Skills Knowledge Questionnaire, Negotiation Process-Style Scale, and Rahim Conflict Inventory-II (ROCI-II). **Results:** A statistically significant positive correlation was found at pretest ($r=0.357$, $P=0.0001$), indicating a weak-to-moderate relationship between knowledge and practice at baseline. This correlation strengthened at the immediate posttest ($r=0.455$, $P=0.0001$) and substantially increased at the 3-month follow-up ($r=0.699$, $P=0.0001$). **Conclusion:** The findings of the study concluded that the educational training program was effective in significantly improving staff nurses' negotiation skills knowledge, negotiation practice, and conflict resolution abilities. Most nurses demonstrated substantial improvements immediately after the intervention, with these gains largely maintained at follow-up. Additionally, significant positive correlations were found between negotiation knowledge, negotiation practice, and conflict resolution, indicating that increased knowledge enhanced the application of negotiation skills, which subsequently improved nurses' ability to resolve conflicts effectively. **Recommendations:** Incorporate negotiation and conflict resolution content into undergraduate and postgraduate nursing curricula. Emphasize the relationship between communication, negotiation, and patient care outcomes throughout nursing education programs.

Keywords: Conflict Resolution, Educational Program, Intensive Care Units, Negotiation Skills, Nurses

Introduction

A huge group of more experienced nurses and nursing managers has stated that conflict with physicians is often the dominant professional conflict over other different occupations in the workplace. Conflict is the main cause of poor collaboration between nurses and physicians, and negotiation is the best way to resolve conflicts between health care professionals. Negotiation is the best effective approach to conflict control. It is significant to nurses in health care settings to recognize different negotiation styles; therefore, they can interact properly through diverse conditions of conflict in the organization. Nowadays, in the health care institute, the roles of nurses differ, which are primarily focused on monotonous work and duty toward patients and nurses (Plack, & Driscoll, 2024).

Negotiation is a method for resolving administrative conflicts in a health care organization. Conflicts between health care nurses and physicians are not restricted in teams and may lead to suboptimal patient care. Negotiation is based on skills that enable negotiators to succeed in their roles, so they must learn these skills and practices that lead to solving the various complexities and difficulties that arise in an organization along with awareness of negotiation techniques and knowledge of different concepts of negotiation. In high-stress settings like ICUs, conflicts can arise due to various factors, including differences in opinions, communication breakdowns, and the intense pressure of providing critical care (Plack, & Driscoll, 2024).

Nurses equipped with strong negotiation skills are better prepared to address these conflicts constructively, facilitating discussions that lead to mutually beneficial outcomes and improved teamwork. Educational programs designed to enhance negotiation skills among head nurses significantly impact their ability to resolve conflicts effectively. For example, a study highlighted that after participating in a structured educational program, head nurses demonstrated a marked improvement in both their knowledge and practical application of negotiation techniques (Aslanyan-rad, 2024).

Negotiation was defined as to meeting and discussing with one another to reach an agreement. The management role for nurses arises from basic preparation (skills), knowledge, and experience of the management practices. Instruments of management like negotiation of conflict are used to organize the managerial tasks logically and to support professional decision making. It is significant to administrators in health care settings to recognize different negotiation styles;

therefore, they can interact properly through diverse conditions of conflict in the organization. Nowadays, in the health care institute, the roles of nursing managers, especially first liners, differ, primarily focused on monotonous work and duty toward patients and nurses (Hewitt, Mills, Hoare, & Sheridan, 2024).

Negotiation passes in three stages/phases; preparation (gathering all possible information related to the negotiating parties and the causes of the problem), the procedure/action (the involvement of all parties in the discussion of the dispute under negotiation), and closure (ending the negotiation process by agreement or disagreement). Five principles must exist in conflict negotiations; the negotiation parties' worries, involved concerns, the parties' relationship, communication through process of negotiation, and the result attained (Guillemot, Dyen, & Tamaro, 2022).

As head nurses become adept at negotiation, they can model these skills for their teams, promoting a culture of open communication and collaboration among nursing staff. Effective negotiation involves understanding the perspectives of all parties involved and working towards solutions that address the underlying issues causing conflict. In the ICU setting, this may include negotiating staffing concerns, resource allocation, or differing care approaches among team members. Moreover, enhancing negotiation skills among nurses contributes to overall job satisfaction and retention rates within the ICU (Guillemot, Dyen, & Tamaro, 2022).

Negotiation skills among nurses are critical for fostering effective communication, resolving conflicts, and improving patient care outcomes in healthcare settings. Negotiation is defined as the process of communicating and interacting to reach a mutually acceptable agreement on differing needs or ideas. For nurses, this skill is essential as they regularly negotiate with patients, families, physicians, and colleagues to advocate for their patients' needs and ensure smooth team collaboration (Guillemot, Dyen, & Tamaro, 2022).

Negotiation in nursing is not limited to conflict resolution; it also encompasses advocating for workplace improvements, such as better staffing ratios or fair scheduling, and even career advancement opportunities like salary negotiations. In healthcare, negotiation skills enable nurses to address complex situations constructively. For example, nurses often mediate between patients and physicians to align treatment plans with patient preferences while ensuring medical

efficacy. This requires active listening, empathy, and the ability to find common ground (Wright, Chan, Fishman, & Macdonald, 2021).

By focusing on shared goals—such as patient well-being—nurses can de-escalate tensions and foster collaborative problem-solving. Effective negotiation also helps nurses advocate for patient-centered care by involving patients in decision-making processes, which improves satisfaction and health outcomes. One of the key aspects of negotiation is conflict resolution. In high-stress environments like hospitals, disagreements may arise over resource allocation, treatment priorities, or communication breakdowns among team members (Plack, & Driscoll, 2024).

Nurses with strong negotiation skills can address these conflicts by using techniques such as asking open-ended questions to understand concerns, finding points of agreement, and reframing issues to focus on shared objectives rather than individual demands. For instance, instead of framing a disagreement as a personal conflict, a nurse might emphasize the patient's need to redirect the conversation productively. The importance of negotiation extends beyond immediate patient care. It also plays a role in fostering a positive work environment (Hewitt, et al., 2024).

Nurses who can negotiate effectively with managers or administrators are better equipped to advocate organizational changes that improve working conditions, such as better staffing levels or access to professional development opportunities. This not only enhances job satisfaction but also reduces burnout and turnover rates among nursing staff. When nurses feel authorized to engage in conflict resolution through effective negotiation, they are more likely to experience a sense of ownership over their work environment (Evans, 2024).

Conflict resolution in nursing refers to the methods and processes used to address disagreements and disputes that arise within the healthcare environment. These conflicts can occur between nurses, between nurses and patients, or among interdisciplinary teams, often stemming from differing opinions, communication breakdowns, or competing priorities. Effective conflict resolution is essential in nursing as it helps maintain a harmonious work atmosphere, ensures patient safety, and promotes high-quality care (Gómez, & Tremolosa, 2024).

Given the high-stress nature of nursing, where emotions can run high and stakes are critical, the ability to resolve conflicts constructively is crucial for effective teamwork and collaboration. Conflict resolution

in nursing is an essential competency that impacts both the work environment and patient care outcomes. By equipping nurses with effective conflict management skills, healthcare organizations can promote a culture of collaboration and support that ultimately leads to improved quality of care for patients (Gunasingha, Lee, Zhao, & Clay, 2023).

As such, ongoing training in conflict resolution should be prioritized within nursing education and professional development programs to prepare nurses for the challenges they will face in their careers. The prevalence of conflict in nursing is significant; a report by the American Nurses Association indicated that 68% of nurses experience workplace conflict at least once a week. This statistic underscores the necessity for nurses to develop strong conflict resolution skills. By learning and implementing effective strategies, nurses can manage disputes quickly and efficiently, leading to improved teamwork, increased job satisfaction, and better patient outcomes (Basaran, Col, & Kose, 2024).

Conflict resolution not only addresses immediate issues but also fosters an environment where open communication and collaboration can thrive. Several strategies are employed in conflict resolution within nursing. Key techniques include active listening, where nurses fully engage with the perspectives of others to understand their concerns; mediation, which involves a neutral third-party facilitating discussions to help conflicting parties reach a mutually agreeable solution; and negotiation, where parties work together to find common ground (Yonge, 2021).

Additionally, acknowledging the existence of a conflict and addressing it openly is vital for preventing escalation and fostering a culture of trust among team members. The importance of conflict resolution extends beyond individual interactions; it has significant implications for patient care. When conflicts are resolved effectively, disruptions in care delivery are minimized, ensuring that patient safety protocols are followed without interruption. Furthermore, a collaborative work environment enhances morale among nursing staff, which contributes positively to job satisfaction and retention rates (Alan, Gül, & Baykal, 2022).

Significance of Study

The negotiations play a major role in all aspects of the daily activity of the nurses. Every debate that requires a decision need negotiating skills. The nurse negotiates with patients and their families, with other

nurses, managers, physician and other healthcare workers to obtain their full consent and cooperation. Also, negotiation helps to define responsibilities, clarify ambiguities, and develop interpersonal and social relations (Essex, Kennedy, Miller, & Jameson, 2023).

Nurses, including those in intensive care units, may spend much of their time negotiating and resolving conflicts. If they are not able to negotiate and handle conflict properly, it may significantly affect their morale, increase turnover, and even result in litigation, ultimately affecting the overall well-being of the organization. A clearer understanding of the factors that underline conflict resolution styles could lead to the promotion of better management strategies (Van Wees, DuijsMazurel, Abma, & Verdonk, 2024).

Conflict resolution is an essential issue that nurses need to acquire and practice, since conflict is inevitable, whether in learning environments or clinical settings that deal with conflict and to prevent the mistakes (Liao, Kuang, Liu, & Tang, 2021). Negotiation skills and conflict resolution are necessary tools that nurses utilize to organize their activities reasonably and support their decision making. So, it is very important for them to be aware and knowledgably about different concepts of negotiation and learn these skills and practices that are required to solve their conflict and succeed in their roles (Jordan, & Troth, 2021). Therefore, this study aims to evaluate the effect of an educational program of negotiation skills among nurses on conflict resolution in intensive care units at King Fahd Medical City, Riyadh, Saudi Arabia

Aim of the study

This study aims to evaluate the effect of an educational program of negotiation skills among nurses on conflict resolution in intensive care units at King Fahd Medical City, Riyadh, Saudi Arabia through:

1. Assessing nurses' knowledge regarding negotiation skills.
2. Assessing nurses' practice of negotiation skills.
3. Assessing conflict resolution among nurses.
4. Implementing an educational program about negotiation skills for nurses.
5. Evaluating the effect of an educational program of negotiation skills among nurses on conflict resolution.

Research Hypothesis

The specific research hypotheses are:

- H1.** The nurses' knowledge regarding negotiation skills improves after implementing negotiation skills educational program.
- H2.** The nurses' practice of negotiation skills improves after implementing negotiation skills educational program.
- H3.** The nurses' conflict resolution improves after implementing negotiation skills educational program.

Method

Research design

Quasi experimental research design (pre –posttest) was used to achieve the aim of the present research. Such design fits the nature of the problem under analysis and investigation. A quasi – experimental is an empirical intervention study used to estimate the causal impact of an intervention on its target population without random assignment (Polit, & Beck, 2022).

Setting

This study was conducted in all intensive care units at King Fahd Medical City, Riyadh. KSA, which is affiliated with the Ministry of Health (MOH). It consisted of various inpatient departments such as surgical, medical, one day surgery, infection control and public health departments. Which serve the residents of Riyadh, in Kingdom Saudi Arabia through 500 beds capacity. KFMC's ICU services are extensive and cover adult, pediatric, neonatal, and specialized critical care units. For example, its Children's Specialized Hospital lists a Pediatric Intensive Care Department (PICD) and Neonatal Intensive Care Department (NICD) with advanced technologies and specialized services.

Participant

Convenience sample was utilized which includes (n=114 nurses) who were responsible for providing patient care working at previously mentioned settings and who fulfills the criteria of having a minimum of one-year experience work and available at time of data collection.

Tools of data collection:

Three tools were used for data collection in the present.

Tool (I): Negotiation Skills Knowledge Questionnaire.

It consisted of two parts:

Part 1: Personal characteristics of nurses such as age, gender, marital status, level of education, and years of experience.

Part 2: Negotiation Skills Knowledge Questionnaire.

It was developed by a researcher based on literature review (Khalid, & Fatima, 2016; Waithaka, Moore-Austin, & Gitimu, 2015; McClendon, Burke, & Willey, 2010). It aims to assess study nurses' knowledge about negotiation skills and was composed of 20 questions in the form of multiple choice and true & false. The questions were scored as "1" for correct answer, and "zero" for incorrect answer.

Scoring system:

The scoring system of negotiation skills knowledge questionnaire was classified into three categories based on a predetermined cut-off point (60%), as follows:

- Low (<60%).
- Moderate (50%-75%).
- High (>75%).

Tool (II): Negotiation Process-Style Scale:

It was developed by (Ester & John, 2010) and aims to assess the negotiation skills practice. It contains 28 statements divided into four main categories: Talker (7 items), aggressor (7 items), preparer (7 items) and finally, listener (7 items). To assess these statements was used scale ranging from "3" always, '2' sometime and "1" never.

Scoring system:

The scoring system of negotiation process-style scale was classified into three categories based on a predetermined cut-off point (60%), as follows:

- Low (<60%).
- Moderate (50%-75%).
- High (>75%).

Tool (III): Rahim Conflict Inventory – II (ROCI-II)

It was developed by Rahim, (1983). This instrument consists of 28 items which measure the five styles of handling conflict. It is designed to measure five independent dimensions of the styles of handling interpersonal conflict as the following: Integrating dimension (7 items), obliging (6 items), dominating (5 items). avoiding

(6 items), and finally, compromising (4 items). Answers were measured on a five -point rating scale extended from: 1= (strongly disagree), 2= (disagree), 3= (undecided), 4= (agree) and 5= (strongly agree).

Scoring system:

The scoring system of Rahim conflict inventory was classified into three categories based on a predetermined cut-off point (60%), as follows:

- Low (<60%).
- Moderate (50%-75%).
- High (>75%).

Validity and reliability

Study tools were tested for their face and content validity by five experts in the field of the study, and accordingly the necessary modification was done. Reliability testing was done and judged by how the items that reflect the same construct yield similar results and will be tested for its reliability by using Cronbach alpha test and knowledge test was modified and translated into Arabic language by the researcher.

Reliability test of the study tools, negotiation skills knowledge questionnaire, negotiation process-style scale, and Rahim conflict inventory were tested by Cranach's Alpha. Reliability was computed and found (0.88), (0.87), & (0.93) respectively.

Pilot study:

It was conducted on 10% (n=11) of the study sample to test the feasibility and clarity of the tools and were randomly selected and excluded from the study sample. Not necessary modifications were made accordingly.

Ethical Considerations:

Ethical approval was obtained from the Research Ethical Committee of Faculty of Nursing, Mansoura University (**IRB: 765**). An official permission to conduct the study will be obtained from the responsible administrator of the King Fahd Medical City, Riyadh, Saudi Arabia. All participants were informed that participation is voluntary, and they have the right to withdraw from the study at any time. All participants were assured about the confidentiality of the collected data, and the privacy of the study sample were assured at all phases of the study. Written informed consent was obtained from

the participants who agree to participate in the study after explanation of the nature and aim of the study.

Data Collection:

Data collection for this study was through the following:

- An official permission was issued from the Faculty of Nursing, Mansoura University to carry out the study.
- An official letter was issued with approval from the director of King Fahd Medical City, Riyadh, Saudi Arabia, after explanation of the purpose of the study and the schedule of data collection.
- The researcher met the participants individually to explain the aim of the study and get the approval to participate in the study. Data collection was carried out in 6 months from the beginning of October 2024 to the end of July 2025. The period of designing a training program lasted around two months from start to finish from the beginning of October 2024 to the end of November 2024. Nurses completed tests prior to the start of the training program.
- A pretest of negotiation skills knowledge, negotiation skills practice, and conflict resolution (Tool I, II, & III) were distributed to assess nurses' perception of negotiation skills knowledge, negotiation skills practice and conflict resolution before implementing the program.
- It took 15-20 minutes to finish. The data gathered 3 days/week in the morning and afternoon shift.
- Negotiation skills educational program was designed based on collected data and relevant literatures to identify related topics and prepare sessions' content.
- The program was implemented and took 4 weeks with 4 sessions once per week, every session has one hour for each group of the sample studied.
- Appropriate methods of teaching were used as brainstorming, lectures, videos, discussion and handout that were prepared by the researcher and was distributed to the participants on the first day of the educational program.
- Post- test was used to evaluate the effect of negotiation skills educational program immediately and after 3 months of completion of training program using the three tools of data collection (Tool I, II, & III). The researcher started to follow up the proposed progress after training program through comparison of results with the baseline finding obtained in the pretest assessment by using the same three tools of data collection.

Results:**Table (1): Personal characteristics of the studied nurses in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia (n=114).**

Personal characteristics	The studied nurses (n=114)	
	n	%
■Age years 20-<25 25-<30 30-<35 35-40 >40 Range Mean±SD	14 14 19 62 5 20-50 37.17±8.27	12.3 12.3 16.7 54.4 4.4
■Sex Male Female	32 82	28.1 71.9
■ Marital Status Single Married Divorced Widow	41 68 1 4	36.0 59.6 0.9 3.5
■Experience years < 1 1-<6 6-10 >10 Mean±SD	3 23 50 38 11.87±4.94	2.6 20.2 43.9 33.3
■Work department ICU CCU NICU	24 50 40	21.1 43.9 35.1
■ Educational qualification Diploma Associate degree in Nursing (AND) Bachelor of Science in nursing (BSc)	27 22 65	23.7 19.3 57.0

Table (1) illustrates the personal characteristics of the studied nurses working in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia. The data reveals that the more than half of the studied

nurses (54.4%) were aged from 35–40 years age group, with a mean age of 37.17 ± 8.27 years. Concerning sex, the majority (71.9%) of them were female, and nearly two thirds of the studied nurses (59.6%) were married. As for years of experience, the largest proportion (43.9%) had 6–10 years of experience, with a mean experience of 11.87 ± 4.94 years. Regarding work department, nearly half of the studied nurses (43.9%) were working in the Coronary Care Unit (CCU), and more than half of them (57.0%) held a Bachelor of Science in Nursing (BSc),

Table (2): Level of Negotiation Skills Knowledge of the studied nurses in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia pre and post implementing negotiation skills educational program(n=114)..

Negotiation Skills Knowledge level (Each item was scored 0-1)	Knowledge level of the studied nurses pre and post implementing negotiation skills educational program (n=114)						x ² test P value
	Pretest		Immediate Posttest		After 3 months follow up		
	n	%	n	%	n	%	
A-Multiple choice questions (MCQs) level							
Low level (0-5)	35	30.7	4	3.5	16	14.0	49.019 0.0001*
Moderate level (6-7)	13	11.4	1	0.9	5	4.4	
High level (8-10)	66	57.9	109	95.6	93	81.6	
B-True/False knowledge questions level							
Low level (0-5)	37	32.5	5	4.4	11	9.6	105.96 0 0.0001*
Moderate level (6-7)	38	33.3	4	3.5	8	7.0	
High level (8-10)	39	34.2	105	92.1	95	83.3	
Total Negotiation Skills Knowledge level							
Low level (0-11)	36	31.6	5	4.4	15	13.2	74.165 0.0001 *
Moderate level (12-15)	25	21.9	1	0.9	7	6.1	
High level (16-20)	53	46.5	108	94.7	92	80.7	

N.B. Knowledge 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) shows the total level of negotiation Skills Knowledge at the three assessment points. Prior to the program, less than half (46.5%) of nurses were at the high knowledge level for total scores, with (21.9%) at moderate level and (31.6%) at low level. Following the educational program, there was a dramatic shift: (94.7%) of nurses reached the high knowledge level in the immediate posttest, while only (4.4%) remained at the low level. At the 3-month follow-up, (80.7%) of nurses maintained the high knowledge level, all differences were highly statistically significant ($P=0.0001$). This demonstrates the training program's effectiveness in substantially improving and sustaining negotiation skills knowledge among staff nurses.

Table (3): Total Negotiation Skills Practice level and mean score and of the studied nurses in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia pre and post implementing negotiation skills educational program (n=114).

Total Practice of negotiation skills (Each item was scored 1-3)	Total negotiation skills practice of the studied nurses pre and post implementing negotiation skills educational program (n=114)						χ^2 test P value
	Pretest		Immediate posttest		After 3 months follow up		
	n	%	n	%	n	%	
• Total Practice level of negotiation skills							
Low level (28-55)	74	64.9	50	43.9	53	46.5	14.497 0.006*
Moderate level (56-67)	21	18.4	23	20.2	24	21.1	
High level (68-84)	19	16.7	41	36.0	37	32.5	
•Total Practice scores of negotiation skills (28-84))							
Range	28-81		30-84		37-81		
Mean±SD	42.67±17.78		60.20±13.39		57.29±10.88		
χ^2 value	64.819						
P value	0.0001*						

N.B. Practice level of negotiation skills was classified into; Low level (<50% of total scores), Moderate level (50-70% of total scores) and high level (>70% of total scores).

Table (8) & Figures (7,8) summarizes the total negotiation skills practice level and mean scores pre and post training program. At pretest, nearly two-thirds (64.9%) of the studied nurses were at the low practice level, with only (16.7%) at the high level. Following the training, the high practice level increased significantly to (36.0%) at immediate posttest, while low-level rates decreased to (43.9%) ($\chi^2=14.497$, $P<0.006^*$). At the 3-month follow-up, the high practice level slightly declined to (32.5%) but remained double the pretest proportion. The mean score range expanded from 42.67 ± 17.78 pre-program to 60.20 ± 13.39 post-program, ($P<0.0001^*$) and sustaining at 57.29 ± 10.88 after three months. These results demonstrate the training program's profound and lasting impact on nurses' negotiation skills.

Table (4): Total Conflict Resolution scores and level of the studied nurses in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia pre and post implementing negotiation skills educational program(n=114)..

Total Conflict Resolution (Each item was scored 1-5)	Total Conflict Resolution of the studied nurses pre and post implementing negotiation skills educational program (n=114)						x ² test P value
	Pretest		Immediate posttest		After 3 months follow up		
	n	%	n	%	n	%	
•Total Conflict Resolution level							76.787 0.0001 *
Low level (28-83)	34	29.8	8	7.0	3	2.6	
Moderate level (84-106)	38	33.3	9	7.9	26	22.8	
High level (107-140)	42	36.8	97	85.1	85	74.6	
•Total Conflict Resolution scores (28-140)							
Range	28-140		65-140		62-140		
Mean±SD	93.43±2.17		121.03±19.08		119.01±17.82		
x ² value	99.358						
P value	0.0001*						

N.B. Conflict Resolution level was classified into; Low level (<50% of total scores), Moderate level (50-70% of total scores) and high level (>70% of total scores).

***Statistically significant (P<0.05)**

Table (4) summarize the total conflict resolution level and score distribution. At pretest, the nurses were almost equally distributed across the three levels: low (29.8%), moderate (33.3%), and high (36.8%), with a total mean score of 93.43 ± 2.17 . Following the program, a dramatic shift occurred, with (85.1%) of nurses achieving the high conflict resolution level at the immediate posttest and the mean score rising to 121.03 ± 19.08 . At the 3-month follow-up, (74.6%) of nurses maintained the high level, (22.8%) were at the moderate level, and only (2.6%) remained at the low level, with a sustained mean score of 119.01 ± 17.82 . The chi-square test confirmed highly statistically significant differences ($\chi^2=76.787$, $P=0.0001$; scores $\chi^2=99.358$, $P=0.0001$).

Table (5): Correlation between total scores of Conflict Resolution and Negotiation Skills Knowledge and Practice among the studied nurses in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia pre and post implementing negotiation skills educational program(n=114)..

Variables	Total Conflict Resolution scores of the studied nurses pre and post program (n=114)					
	Pretest		Immediate posttest		After 3 months follow up	
	r	P value	r	P value	r	P value
Total Negotiation Skills Knowledge scores	0.574	0.0001*	0.765	0.0001*	0.802	0.0001*
Total Negotiation Skills Practice scores	0.493	0.0001*	0.708	0.0001*	0.873	0.0001*

***Statistically significant (P<0.05)**

r=Correlation Coefficient

Table (5) present the Pearson correlation coefficients between total conflict resolution scores and both negotiation skills knowledge and practice scores across the three assessment time points. Regarding the correlation between conflict resolution and knowledge, a moderate

positive correlation was found at pretest ($r=0.574$, $P=0.0001$), which strengthened to a strong correlation at immediate posttest ($r=0.765$, $P=0.0001$) and further increased at the 3-month follow-up ($r=0.802$, $P=0.0001$). Similarly, the correlation between conflict resolution and practice scores was moderate at pretest ($r=0.493$, $P=0.0001$), rising to a strong correlation at immediate posttest ($r=0.708$, $P=0.0001$) and reaching a very strong correlation at the 3-month follow-up ($r=0.873$, $P=0.0001$). These findings indicate that as nurses' negotiation knowledge and practice improved following the educational program, their conflict resolution capability improved correspondingly, with increasingly stronger correlation over time.

Table (6): Correlation between total scores of Negotiation Skills Knowledge scores and Negotiation Skills Practice scores among the studied nurses in Intensive Care Units at King Fahd Medical City, Riyadh, Saudi Arabia pre and post implementing negotiation skills educational program(n=114)..

Variable	Total Negotiation Skills Knowledge scores of the studied nurses pre and post program (n=114)					
	Pretest		Immediate posttest		After 3 months follow up	
	r	P value	r	P value	r	P value
Total Negotiation Skills Practice scores	0.357	0.0001*	0.455	0.0001*	0.699	0.0001*

***Statistically significant ($P<0.05$)**

r=Correlation Coefficient

Table (6) examines the correlation between total negotiation skills knowledge and practice scores across the three assessment time points. A statistically significant positive correlation was found at pretest ($r=0.357$, $P=0.0001$), indicating a weak-to-moderate relationship between knowledge and practice at baseline. This correlation strengthened at the immediate posttest ($r=0.455$, $P=0.0001$) and substantially increased at the 3-month follow-up ($r=0.699$, $P=0.0001$), suggesting that nurses who retained more knowledge over time were also more likely to apply it in their practice.

Discussion

Negotiation skills among nurses are essential competencies that enable them to manage interactions effectively within complex healthcare environments. In general, negotiation involves the ability to

communicate clearly, listen actively, and reach mutually beneficial agreements among individuals with differing perspectives. For nurses, these skills are particularly important when coordinating patient care, allocating resources, collaborating with multidisciplinary teams, and advocating for patients' needs. Effective negotiation helps nurses maintain professional relationships, reduce misunderstandings, and ensure that patient care decisions are made collaboratively and ethically (Mohammed et al., 2025),

Conflict resolution, on the other hand, is a fundamental process that addresses disagreements or tensions that arise in the workplace. In general, conflict is inevitable in healthcare settings due to high stress, diverse professional roles, and varying expectations. Nurses frequently encounter conflicts with colleagues, physicians, patients, or family members, which can negatively impact teamwork and patient outcomes if not managed properly. Conflict resolution skills involve identifying the root causes of disagreement, applying appropriate strategies such as compromise, collaboration, or mediation, and maintaining a respectful and solution-oriented approach (Zahn & Schöbel 2024),

Negotiation serves as a proactive approach to prevent conflicts by facilitating understanding and agreement before issues escalate, while conflict resolution provides strategies to manage disputes when they occur. Together, these skills enable nurses to handle challenging situations constructively, promote teamwork, and foster mutual respect among healthcare professionals. By combining negotiation and conflict resolution abilities, nurses can improve interpersonal relationships, reduce workplace stress, and ultimately enhance both staff satisfaction and patient care outcomes (Moustafa, Hassan, & Badran 2025),

Therefore, this study aimed to evaluate the effect of educational program of negotiation skills among nurses on conflict resolution in intensive care units at King Fahd Medical City, Riyadh, Saudi Arabia

The total negotiation knowledge scores across the three assessment time points

Current results illustrate the total mean negotiation knowledge scores across the three assessment time points and demonstrate a steep rise from the pretest mean score at the immediate posttest, followed by a modest decline at the 3-month follow-up. Despite this slight decrease, the follow-up scores remained substantially and significantly higher than baseline.

This may be due to the immediate effect of the training intervention, which typically enhances nurses' cognitive acquisition

and short-term retention of negotiation knowledge right after exposure, leading to the sharp increase observed at the posttest phase. The subsequent slight decline at the 3-month follow-up can be attributed to the natural process of knowledge decay over time, especially in the absence of continuous reinforcement, practice opportunities, or refresher sessions. However, the fact that follow-up scores remained significantly higher than baseline suggests that the intervention had a lasting impact, likely because participants were able to internalize key concepts and integrate them into their clinical experiences, thereby maintaining a higher level of knowledge compared to their initial pretest state.

In alignment with Moustafa, Hassan, & Badran (2025), who studied the effect of a negotiation skills training program on head nurses' knowledge and behavior, the current findings are strongly supported. Their study revealed a significant improvement in nurses' knowledge scores immediately after the intervention, followed by a slight decline at follow-up; however, the post-intervention scores remained significantly higher than baseline levels. This pattern closely mirrors the present results, indicating that while some knowledge attrition may occur over time, structured training programs produce sustained positive effects on negotiation knowledge among nurses.

Along with Wahl-Alexander & Curtner-Smith (2021), who studied the impact of a training program on preservice teachers' ability to negotiate, the current findings are further reinforced. Their results demonstrated a marked increase in negotiation competence immediately after training, with a slight reduction over time, yet maintaining levels above pre-intervention scores. This consistency highlights that learning decay is a natural phenomenon, but well-designed educational interventions ensure long-term retention of negotiation knowledge and skills.

In agreement with Dannenmann et al. (2022), who studied AI-driven applications versus conventional training in learning negotiation, the current findings are supported as their results indicated that participants exhibited substantial improvement in negotiation knowledge immediately after training. Although some decline was observed during later assessments, participants retained significantly higher competence compared to baseline. This confirms that both traditional and technology-enhanced learning approaches can yield lasting improvements despite minor reductions over time.

In consistent with Zahn & Schöbel (2024), who studied the use of conversational agents for learning negotiation skills, the current

findings align with their conclusion that interactive learning tools significantly enhance negotiation knowledge in the short term, with a gradual decline in retention over time. Nevertheless, the retained knowledge remained higher than initial levels, emphasizing the effectiveness of continuous or reinforced learning strategies in sustaining negotiation competencies.

Besides Gericke & Torbjörnsson (2022), who studied the role of continuous negotiation in building shared vision and trust within educational reforms, the current findings are supported indirectly. Their study emphasized that negotiation is a dynamic and ongoing process requiring continuous reinforcement, suggesting that without sustained engagement, some decline in knowledge or application may occur. This perspective explains the slight decrease observed at follow-up while still supporting the persistence of improved knowledge levels.

The total negotiation practice scores across the three assessment time points

Current results illustrate the total negotiation practice levels at the pretest, immediate posttest, and 3-month follow-up and highlight the progressive improvement from pretest, where low-level practice was dominated, to the immediate posttest, where high-level practice increased markedly, and the follow-up, where high-level practice was maintained. The proportional shift from predominantly low-level to a more balanced distribution at posttest and follow-up visually confirms the sustained effectiveness of the negotiation skills educational program in elevating the overall practice level among ICU nurses.

In alignment with Zahn, & Schöbel, (2024), who studied the use of a conversational agent to enhance negotiation skills, the current findings demonstrate a clear and progressive improvement in negotiation practice levels from pretest to immediate posttest and sustained at follow-up. Their study revealed that interactive, technology-supported negotiation training significantly enhanced learners' applied negotiation performance and facilitated continuous skill development over time. This supports the present results, which highlight not only immediate improvement but also the retention of high-level negotiation practice among ICU nurses, indicating the lasting impact of structured educational interventions.

Along with Dannenmann, et al. (2022), who studied AI-driven negotiation training compared with conventional methods, the current results are reinforced, as their findings indicated that innovative, structured training approaches significantly improved negotiation competencies and practical application. They emphasized that

experiential and technology-enhanced learning led to higher engagement and better skill acquisition, which aligns with the observed shift in the current study from predominantly low-level practice at pretest to a higher proportion of advanced practice at posttest and follow-up, confirming the effectiveness and sustainability of the program.

In agreement with Wahl-Alexander, & Curtner-Smith, (2021), who studied the impact of a training program on preservice negotiation abilities, the present findings are supported. Their study reported significant improvements in participants' ability to apply negotiation strategies effectively after training, with noticeable retention over time. Similarly, the current study demonstrates a marked enhancement in negotiation practice immediately after the intervention, with sustained high-level performance at the 3-month follow-up, indicating that well-designed training programs can produce durable behavioral changes across different professional contexts.

In consistent with, as well as Moustafa, Hassan, & Badran, (2025), who studied the effect of a negotiation skills training program on head nurses' knowledge and behavior, the current findings further gain support. Their results demonstrated significant post-intervention improvements in both knowledge and behavioral practices related to negotiation, with sustained positive outcomes over time. This is congruent with the current results, where ICU nurses exhibited a substantial rise in high-level negotiation practice post-intervention that remained stable at follow-up, confirming the long-term effectiveness of such educational programs.

Conflict Resolution among the Studied Nurses: -

The current study shows the distribution of conflict resolution levels across all five ROCI-II dimensions at the three time points. The figure illustrates the pronounced shift from mixed or predominantly low-to-moderate levels at pretest to overwhelmingly high levels at the immediate posttest, with sustained high-level distributions at the 3-month follow-up across all dimensions. Notably, the Dominating and Integrating dimensions exhibited the most dramatic transitions, while all five dimensions showed similarly strong improvements.

This may be due to the structured educational program enhancing nurses' knowledge, self-awareness, and practical skills in conflict resolution, enabling them to adopt more adaptive strategies across all ROCI-II dimensions. The intervention likely improved both cognitive understanding and behavioral confidence, particularly in Dominating and Integrating styles, allowing nurses to respond

assertively while maintaining collaboration. Additionally, ongoing reinforcement and practice during the program may have contributed to the sustained high-level performance observed at the 3-month follow-up.

The current findings are supported by Mohammed et al., (2025), who conducted a study on the role of an emotional intelligence program in nurses' management of stress and conflict resolution. They found that nurses who participated in structured training demonstrated significant improvements in their conflict resolution skills, particularly in assertive and collaborative approaches. This aligns with the present study, where all five ROCI-II dimensions improved markedly following the intervention, with the Dominating and Integrating styles showing the most pronounced changes.

In agreement with the current results, Assi et al., (2022) investigated the relationship between mindfulness and conflict resolution styles among nurse managers. Their cross-sectional study reported that higher levels of mindfulness were associated with increased use of Integrating and Compromising styles, indicating more adaptive conflict management. Similarly, the present study demonstrated a substantial shift toward high levels of adaptive conflict resolution, suggesting that structured educational interventions may enhance nurses' self-awareness and reflective skills, paralleling the effects observed with mindfulness.

Along with these findings, González-García et al., (2025) conducted a systematic review examining nurse managers' conflict management competencies. They reported that interventions emphasizing communication, emotional regulation, and decision-making skills significantly improved conflict resolution performance. The current results corroborate these observations, as the intervention effectively strengthened Dominating and Integrating strategies, reflecting enhanced managerial and interpersonal competence among nurses.

As well as supporting the current outcomes, Rukayat et al., (2024) explored perceived causes of conflict and methods of resolution among nurses in Nigerian hospitals. Their descriptive study revealed that nurses commonly shifted from avoidant or compromising styles to more collaborative strategies after receiving conflict management guidance, which mirrors the present study's transition from low-to-moderate pretest levels to high posttest levels across all ROCI-II dimensions.

Besides, Nikitara et al., (2024) conducted a systematic review analyzing conflict management styles, strategies, and influencing factors in nursing. They found that educational and training interventions were consistently associated with improved use of Integrating and Collaborating strategies, while Dominating and Avoiding styles decreased. In contrast, the current study observed a pronounced increase in both Dominating and Integrating styles post-intervention. This difference may reflect contextual or cultural factors in the study setting, where nurses may employ Dominating strategies more confidently following structured training, yet still retain collaborative capacities.

Relationship Between the Level of Negotiation Skills Knowledge and Practice Across the Three Assessment Time Points: -

Current results examine the relationship between the level of negotiation skills knowledge and practice across the three assessment time points. At pretest, a significant association was observed: among nurses at the low knowledge level, were also at the low practice level, whereas among those at the high knowledge level, each were at the moderate and high practice levels. At the immediate posttest, a strong positive relationship persisted: all nurses at the low and moderate knowledge levels were also at the low practice level, while among high-knowledge nurses, achieved the high practice level, confirmed highly statistically significant associations at all time points, demonstrating that higher knowledge levels were consistently associated with higher practice levels throughout the study.

In alignment with the current findings, Zeffiro et al. (2020), who studied the effect of a serious game on developing negotiation skills among nursing students, reported that improved knowledge acquisition was directly associated with enhanced performance in negotiation scenarios, indicating that students who demonstrated higher cognitive understanding were more capable of applying these skills effectively in practice. This supports the present results, where higher levels of negotiation knowledge were consistently linked with higher levels of practice across all assessment points.

Along with this, Ebrahim (2020), who studied negotiation as a management strategy for conflict resolution among nurses and physicians, found that nurses with greater knowledge of negotiation strategies exhibited significantly better practical application in resolving workplace conflicts and enhancing collaboration. This aligns with the current results that revealed a strong positive association

between knowledge and practice, particularly at the immediate posttest phase.

In agreement with these findings, Campbell et al. (2021), who studied the impact of negotiation training for case managers, demonstrated that increased knowledge and structured training significantly improved participants' ability to apply negotiation techniques in real-life clinical interactions, especially with older adults. Their results reinforce the current study's conclusion that higher knowledge levels translate into improved practice performance.

In consistency with the present results, as well as Choi and Ahn (2021), who studied the effects of a conflict resolution training program among nursing students, reported that participants who gained higher theoretical knowledge showed significantly better skill performance in simulated and real situations. This further supports the strong, statistically significant relationship identified in the current study between negotiation knowledge and practice levels.

Besides, the current findings are supported by Berggren et al. (2020), who studied negotiation processes between district nurses and general practitioners, and found that effective negotiation practices were largely dependent on professionals' understanding and knowledge of roles, communication strategies, and responsibilities. This indicates that knowledge acts as a foundation for competent negotiation practice, consistent with the observed associations in the current results.

Relationship Between the Level of Negotiation Skills Knowledge and Conflict Resolution Across the Three Assessment Time Points: -

The current study explores the relationship between the level of negotiation skills knowledge and conflict resolution across the three assessment time points. At pretest, nurses with lower knowledge levels were primarily at low conflict resolution levels, whereas nurses with higher knowledge demonstrated higher conflict resolution capabilities. At the immediate posttest, this relationship became more pronounced, with nurses at lower knowledge levels remaining at lower conflict resolution levels, while those with higher knowledge predominantly achieved high conflict resolution. This pattern was maintained at the 3-month follow-up, with nurses possessing higher negotiation knowledge continuing to demonstrate high conflict resolution skills.

This may be attributed to the structured educational program, which likely enhanced nurses' understanding of negotiation strategies, practical application skills, and confidence in managing conflicts. By providing targeted instruction, guided practice, and opportunities to apply knowledge in simulated or real scenarios, the program enabled

nurses with higher negotiation knowledge to more effectively implement conflict resolution strategies, leading to sustained improvements across all assessment time points.

The current findings are supported by Shabaan et al., (2021), who conducted a study on the effect of an educational program on head nurses' negotiation skills for conflict resolution in intensive care units. They found that nurses who received structured training demonstrated significant improvements in both negotiation knowledge and conflict resolution effectiveness, mirroring the current study's observation that nurses with higher negotiation knowledge achieved higher conflict resolution levels and maintained these gains over time.

In alignment with the present results, Nikitara et al., (2024) conducted a systematic review analyzing conflict management styles, strategies, and influencing factors in nursing practice. Their review highlighted that nurses with advanced negotiation knowledge and familiarity with conflict management strategies consistently exhibited more effective resolution behaviors, supporting the observed pattern in the current study where higher knowledge was associated with superior conflict resolution outcomes.

Relationship Between the Level of Negotiation Skills Practice Levels and Conflict Resolution Levels Across the Three Assessment Time Points: -

This study presents the relationship between negotiation skills practice levels and conflict resolution across the three assessment time points. At pretest, a clear positive association was observed, with nurses demonstrating higher practice levels also showing higher conflict resolution capabilities, while those with lower practice levels exhibited lower conflict resolution. At the immediate posttest, this relationship became more pronounced, although a ceiling effect was suggested among nurses with the highest practice levels. At the 3-month follow-up, nurses with moderate and high practice levels consistently maintained high conflict resolution skills, whereas those with lower practice levels showed less consistent performance. All observed associations were statistically significant, indicating a strong link between negotiation practice and conflict resolution performance.

This may be due to the direct impact of hands-on negotiation practice on nurses' ability to apply conflict resolution strategies effectively. Engaging in repeated practice likely enhanced their confidence, decision-making, and practical skills, enabling nurses with higher practice levels to translate theoretical knowledge into observable conflict management behaviors. Additionally, structured practice

opportunities may have reinforced learning, improved skill retention, and facilitated the transfer of strategies to real clinical situations, resulting in sustained high performance at follow-up.

The current findings are supported by the study conducted by Shabaan et al., (2021), who examined the effect of an educational program on head nurses' negotiation skills in intensive care units. Their study found that structured training and repeated practice in negotiation significantly enhanced nurses' conflict resolution abilities, particularly when practical exercises were incorporated alongside theoretical learning.

Conclusion:

The findings of the study concluded that the educational training program was effective in significantly improving staff nurses' negotiation skills knowledge, negotiation practice, and conflict resolution abilities. Most nurses demonstrated substantial improvements immediately after the intervention, with these gains largely maintained at follow-up. Additionally, significant positive correlations were found between negotiation knowledge, negotiation practice, and conflict resolution, indicating that increased knowledge enhanced the application of negotiation skills, which subsequently improved nurses' ability to resolve conflicts effectively.

Recommendations:

For Staff Nurses

- Participate regularly in continuing education and training programs focusing on negotiation and conflict resolution skills.
- Apply negotiation techniques in daily clinical practice to enhance collaboration with colleagues, patients, and multidisciplinary teams.
- Engage in self-directed learning activities to maintain and update negotiation competencies.
- Reflect on conflict situations encountered in practice and utilize learned strategies to resolve them effectively.

For Nurse Managers and Head Nurses

- Encourage and facilitate staff participation in negotiation and conflict management training programs.
- Provide ongoing coaching, mentoring, and feedback to support the application of negotiation skills in the workplace.

- Create a supportive work environment that promotes open communication, collaboration, and constructive conflict resolution.

For Hospital Administration

- Establish regular in-service educational programs addressing negotiation skills and conflict resolution for nursing personnel.
- Allocate adequate resources and time for staff development activities related to interpersonal and communication competencies.

For Nursing Education

- Incorporate negotiation and conflict resolution content into undergraduate and postgraduate nursing curricula.
- Utilize simulation-based learning and role-playing exercises to strengthen practical negotiation competencies among nursing students.

For Future Research

- Examine the impact of improved negotiation skills on patient outcomes, teamwork effectiveness, job satisfaction, and staff retention.
- Compare different educational approaches and training methods to identify the most effective strategies for developing negotiation and conflict resolution skills among nurses.

Author Address:

¹MSC in Nursing, Nursing Specialist

²Professor of Nursing Administration, Faculty of Nursing - Mansoura University

³Assistant Professor of Nursing Administration, Faculty of Nursing - Mansoura University.

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