The Effect of Emotional Intelligence Training on Work–Family Conflict in Intensive Care Nurses: A Randomized Controlled Trial

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Abstract

Introduction: Work–family conflict (WFC) is a prevalent stressor for nurses, particularly in intensive care units (ICUs) due to demanding workloads. Emotional intelligence (EI) training has been demonstrated to enhance conflict resolution abilities.
Objective: This study aimed to evaluate the impact of EI training on WFC among ICU nurses.
Methods: A randomized controlled trial with a pretest and posttest design was conducted with 74 nurses from two Iranian hospitals. Participants completed a demographic questionnaire, the Mayer–Salovey–Caruso Emotional Intelligence Test, and the Carlson WFC Scales. They were then randomly assigned to a training group ($n = 36$) and a control group ($n = 38$). The training group received eight 60-min face-to-face EI training sessions twice a week, while the control group received no intervention. Posttest assessments were conducted four weeks later. Data analysis was performed using paired t-tests, independent t-tests, and one-way analysis of covariance in SPSS version 27.
Results: Emotional intelligence training significantly reduced overall WFC and its subscales (strain-based and behavior-based), indicating improved EI outcomes due to training in ICU nurses ($p < .016$). While time-based conflict did not show a significant reduction, improvements were observed within the training group.
Conclusions: The findings suggest that EI training is effective in mitigating WFC and enhancing EI among ICU nurses. Specifically, this training demonstrated significant reductions in behavior-based and strain-based WFC. This approach has the potential to improve both the professional and personal lives of nurses, ultimately contributing to a more fulfilling and sustainable nursing workforce.

Keywords

emotional intelligence, training, work–family conflict, intensive care nurses, randomized controlled trial

Introduction

Background

The workplace and family are two notable aspects of adult life, and finding a satisfactory balance between them is crucial for individuals (Barnett et al., 2019). However, the demands and challenges of these roles often overlap, leading to work–family conflict (WFC; Labrague et al., 2021). Work–family conflict is when the pressures and demands of one's family role are incompatible with those of their work role.

Work–family conflict can manifest in three forms: time-based, strain-based, and behavior-based. Time-based conflict occurs when the time pressures of one role prevent the individual from fulfilling their responsibilities in the other role. Strain-based conflict refers to the stress caused by one role,

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which leads to tension and difficulty in fulfilling the other role. Behavior-based conflict occurs when the expected behaviors in one role clash with those in another (Armstrong et al., 2015).

Studies have shown that WFC is prevalent among nurses, with high levels reported in both Iran and the United States (Zandian et al., 2020). Given the demanding nature of nursing, especially in intensive care units (ICUs), nurses are particularly susceptible to WFC (Jahanpour, 2016). This conflict can have detrimental effects on job performance, job satisfaction, organizational commitment, quality of nursing care, and even health outcomes and the intention to leave work. Moreover, regarding the negative influence on the family, it causes a decrease in satisfaction with family and marital life, hence transferring the tension and stress to other family members resulting in the ineffectiveness of the individual's role in the family (Eltaybani et al., 2019; Mohamed et al., 2022; Tran, 2023; Zainal et al., 2020).

Various individual factors can influence the level of WFC, including age, education, gender, race, job role, workplace, irregular work shifts, workload, long shifts, and working time on weekends (Galletta et al., 2019; Labrague et al., 2021).

The ICU is one of the most stressful departments within a hospital. Given the critical condition of patients under their care, ICU nurses often face significant stressors and challenges (Vahedian-Azimi et al., 2019). The unique nature of their work schedules, heavy workloads, and rotating shifts further hinder work–life balance, leading to physical and psychological strain, and increased WFC. These factors, in turn, can negatively impact nurses' job commitment, performance, and turnover rates. Consequently, there is a pressing and ongoing need to develop and support strategies that alleviate the pressures and stressors experienced by ICU nurses. The benefits of such initiatives, in terms of improved nurse morale and quality of care, far outweigh the costs (Wu et al., 2024).

Review of Literature

Numerous studies have demonstrated a strong inverse relationship between cognitive abilities and WFC. For instance, Zhang et al. (2015) found that individuals with higher cognitive capacities, improved clinical judgment, and enhanced problem-solving skills in both work and family domains experienced significantly lower levels of WFC (Zhang et al., 2015). Furthermore, emotional intelligence (EI) has emerged as a crucial factor in mitigating WFC (Galletta et al., 2019).

Emotional intelligence, as defined by Salovey and Mayer (1990), encompasses the ability to perceive, understand, use, and manage emotions effectively. This definition aligns with the ability model of EI, which focuses on the core competencies of EI, excluding personality traits. This model is particularly relevant to the present study as it emphasizes the practical application of EI skills in navigating and resolving emotional challenges (Kanesan & Fauzan, 2019).

Bandura's (2013) self-efficacy theory provides a valuable framework for understanding the development of EI. According to this theory, an individual's belief in their ability to effectively understand and regulate emotions plays a crucial role in their actual EI levels (Bandura, 2013). Supporting this notion, Liu et al. (2023) found a strong correlation between self-efficacy for emotion regulation and individual EI scores (Liu et al., 2023).

Emotional intelligence training can enhance individuals' ability to manage stress and improve their mental health (Huang et al., 2019). Emotional intelligence is considered a critical asset for nurses, contributing to improved work health, increased job satisfaction, enhanced patient care, and reduced burnout (Al-Oweidat et al., 2023).

Studies have consistently shown that EI training programs can effectively equip nurses with the necessary skills to manage stress, improve emotional regulation, and enhance their overall professional competence (Dou et al., 2022).

Moreover, nurses with higher EI levels demonstrate superior negotiation and problem-solving skills, increased creativity, and enhanced conflict-resolution abilities (Soto-Rubio et al., 2020).

Work–family conflict is a multifaceted phenomenon influenced by various individual, organizational, and environmental factors. It often involves a negative interplay between work and family demands, leading to stress, burnout, and decreased well-being. Recognizing the emotional nature of conflict, enhancing problem-solving skills, and effectively managing emotions are crucial for mitigating WFC (Poku et al., 2020).

While existing research has primarily focused on the correlation between EI and WFC (Chang et al., 2022; Sharma et al., 2016; Zeb et al., 2023), limited evidence exists on the specific impact of EI interventions on WFC within high-stress environments such as critical care units. Hosseini et al. (2012) investigated the impact of EI training on occupational conflicts among nurses, but their study did not specifically focus on WFC (Hosseini et al., 2012). This study aims to address this critical gap in the literature by investigating the effectiveness of a targeted EI intervention in reducing WFC among intensive care nurses.

Methods

Research Questions

The primary research question for this study was:

- What is the effect of EI training on the level of WFC among ICU nurses?

The specific research questions addressed were:

- Are there significant differences in the levels of EI between the training and control groups after the intervention?

- Does EI training significantly reduce the overall level of WFC among ICU nurses?
- Are there significant differences in the levels of time-based, strain-based, and behavior-based WFC between the training and control groups after the intervention?

Study Design and Sampling

The controlled trial study population consisted of all nurses working in ICUs at two government teaching hospitals in Arak, Iran. Pretest evaluation data were collected in September 2022, and the EI program took place in November. A posttest assessment was conducted in January 2023 to evaluate the effects of the EI program over time.

The sample size for each group was calculated using a formula that accounts for Type I ($\alpha = 0.05$, $Z\alpha = 1.96$) and Type II errors ($\beta = 0.20$, $Z\beta = 0.85$), as well as the expected mean scores of WFC in both the control ($\mu_1 = 62.7$) and intervention ($\mu_2 = 57.1$) groups (Khosravan et al., 2018). To account for a 10% dropout rate, a minimum of 40 samples was needed for each group.

All of the enrolled nurses completed the written informed consent ($N = 80$). A total of 80 nurses were eligible to participate in the study, and the data were collected using questionnaires of demographic information, Carlson's WFC, and the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT). These questionnaires were collected by the researcher.

Inclusion criteria for participants included a minimum of 6 months of work experience in the special care units of the aforementioned hospitals and no previous participation in EI training courses. Exclusion criteria included unwillingness to continue participating in educational workshops and absence in successive training sessions. Two nurses did not meet the inclusion criteria and were excluded.

Randomization was carried out by a statistician utilizing a permutation block method with a block length of four via a web-based randomization tool. A rigorous study design was employed in this research. Initially, a total of 78 nurses were randomly allocated to either the training group or the control group. However, due to noncompliance and dropouts, the final sample size consisted of 36 participants in the training group and 38 participants in the control group. The study process can be observed in Figure 1. A final assessment was conducted two weeks after the conclusion of the training program. Participants completed the MSCEIT and the Carlson WFC Scale to measure any changes in EI and WFC.

Intervention

The training sessions were conducted by a researcher who was an expert in EI training. The training program was based on Mayer and Salovey's ability model of EI and aimed to enhance EI in three dimensions: attention, clarity, and emotional repair (Salovey & Mayer, 1990). This program has been widely validated in various organizational, educational, and human resource studies.

The training program consisted of eight group sessions, twice a week, each lasting 60 min. Two additional sessions were conducted in addition to the training sessions. The first session served as a pretraining evaluation and introduction to the program, while the second session was held at the end of the program for final evaluation. An introductory session was held to familiarize participants with the training course's objectives, the EI education process, and the questionnaires' completion.

The training groups comprised 8–15 participants, and practical activities were used to train the introduced skills. These activities mainly took place in a group setting and included lectures, group discussions, and role-playing. The content of the program sessions remained consistent across all training groups to ensure uniformity and comparability.

At the end of each session, nurses had the opportunity to present their case analyses and defend their answers, fostering active engagement and participation. The content of the program sessions, as detailed in Table 1, was tailored specifically to enhance the EI skills of the participants.

In conclusion, the study employed a training program, led by an expert researcher, to enhance EI among nurses. The training sessions were conducted in a group setting and included a variety of activities to engage and educate the participants effectively. The content of the program was carefully developed, focusing on the three dimensions of EI, to improve adaptive strategies and reduce negative moods.

It is worth noting that the control group did not undergo any training intervention, serving as a comparison group to assess the specific impact of EI training on WFC.

Data Collection Measures

A demographic questionnaire collected data on variables such as age, gender, education level, marital status, employment status, work experience, and health conditions, including physical and psychological diseases. This information was gathered to understand the participant characteristics before training commenced.

Work–family conflict was measured using the three-item subscale developed by Carlson et al. (2000). This subscale consists of 18 questions, which are further categorized into three dimensions: time-based WFC (Questions 1–6), strain-based WFC (Questions 7–12), and behavior-based WFC (Questions 13–18). Participants were asked to rate each item on a scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores on this subscale indicate higher levels of WFC. The internal consistency of this subscale was evaluated using Cronbach's alpha, which yielded a coefficient of 0.87, indicating good reliability. The range of scores on this subscale was from 18 to 90 (Carlson et al., 2000).
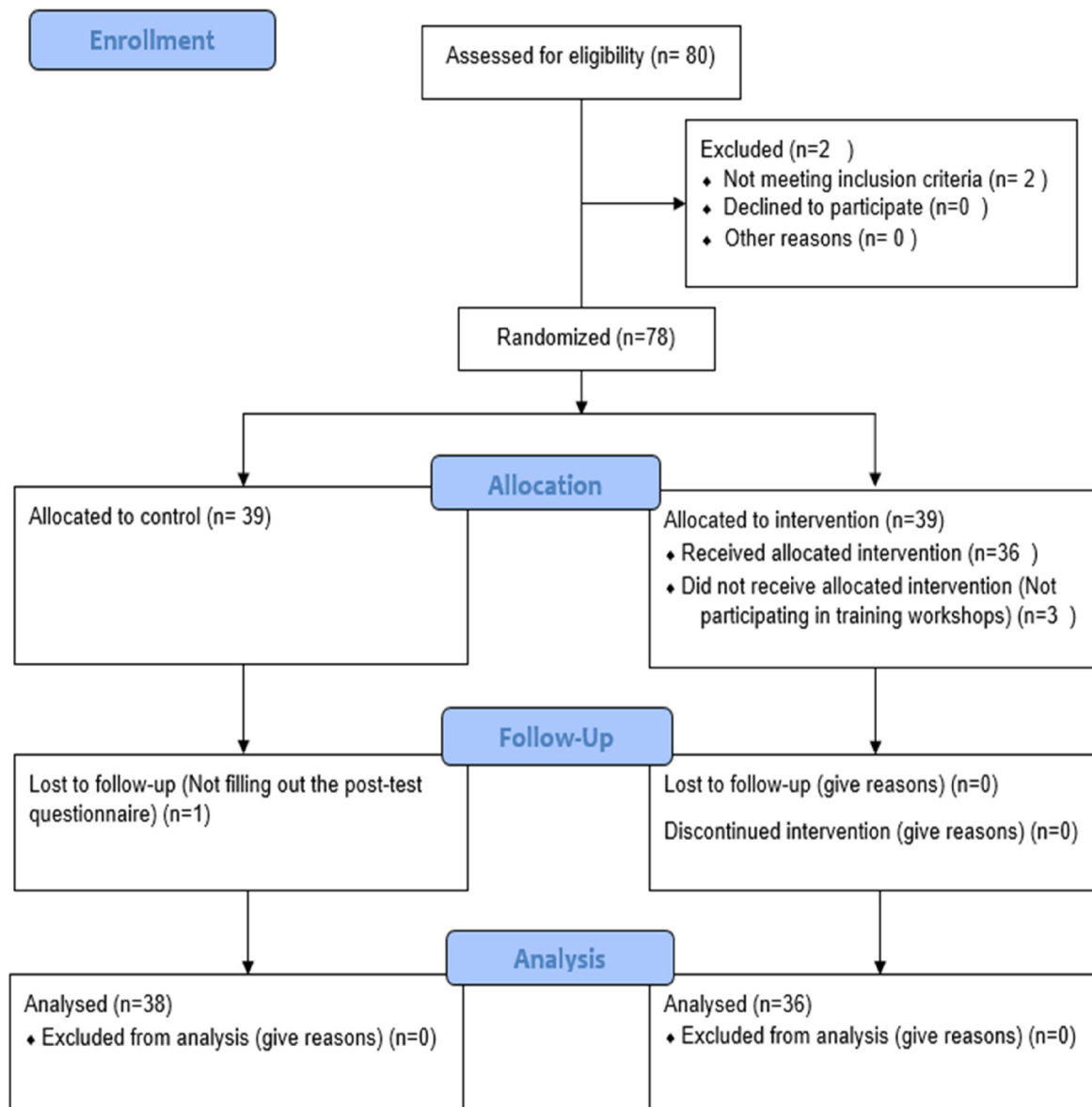
Figure 1. The process of studying according to consort's guideline.

The MSCEIT is grounded in an ability-based model of EI. This instrument serves as a performance-based measure that gauges individuals' emotional competencies in various tasks and their ability to process emotional situations. The MSCEIT assesses the four branches outlined in the theoretical framework proposed by Mayer and Salovey (Salovey & Sluyter, 1997): emotional perception, emotional facilitation, emotional understanding, and emotion management, which encompasses both intrapersonal and interpersonal dimensions. These branches are integrated into two broader areas—experiential and strategic—culminating in a total score that reflects performance across all branches. The psychometric properties of MSCEIT v.2.0 are deemed appropriate and convergent, with evidence of discriminant validity (Mayer et al., 2002).

Additionally, the Persian adaptation of this instrument has demonstrated satisfactory psychometric characteristics. The reliability of this instrument, measured using Cronbach's alpha, has been estimated at 0.79 for the original version and 0.91 for the Persian version (Yousefi, 2006).

Ethical Considerations

The study conduction process began after obtaining approval from the Deputy of Research receiving permission from the Ethics Committee (IR.ARAKMU.REC.1401.107), and coordinating with the officials of Arak University of Medical Sciences. The code (IRCT20220727055570N1) was also obtained from the Iranian Registry of Clinical Trials.

Table 1. Emotional Intelligence Training Program: Sessions and Content.

Sessions	Context of each session	Practical content
1	General discussion about emotional self-awareness training framework	Practical training in this course included learning the physical characteristics of different emotions through photos, scenarios, characters, and role-play. It also involved recognizing emotions in different content such as newspapers and magazines.
2	Self-expression	The training program aimed to develop the ability to express emotions using new ways of communication.
3	Increasing self-confidence	Participants discussed different situations and characters' nonverbal communication.
4	Self-flourishing and striving for personal growth	The program also introduced the idea that feelings matter and how they can be used in family and work settings to improve personal performance.
5	Positive thinking and optimism	Nurses analyzed the influence of thoughts on experiencing emotions and discussed real situations where feelings should be considered. They then suggested solutions to hypothetical situations.
6	Ways to strengthen positive thinking	The program helped participants understand emotions by learning their meaning, functions, and usefulness.
7	Action initiative for self-motivation	Another focus of the training was increasing the ability to remain calm in different conflict situations. Real-life conflict situations from everyday life were used to discuss new ways of coping with problems. A film was also used to identify, compare, reflect, and consider character performance.
8	Sincere relationships (strengthening interpersonal interactions), common sense, emotional, and empathy	Lastly, the program introduced empathic skills and awareness of different perspectives in situations. It depicted certain emotional scenarios for participants to analyze and discuss.

Initially, the purposes of the research project were explained to the participants. After obtaining informed consent, the students were provided with questionnaires, which they completed as a self-report. The right to withdraw from participation was ensured for those who were unwilling to cooperate.

Statistical Analysis

Demographic variables were compared using chi-square and Fisher's exact tests as appropriate. The Shapiro–Wilk test was used to assess the normality of quantitative data distribution in both groups. Baseline differences between the training and control groups at pretest were compared using independent samples t-tests. Paired t-tests were employed to compare pretest and posttest scores within each group. After verifying the assumptions of ANCOVA, differences between the training and control groups were compared using one-way ANCOVAs, with pretest scores as covariates.

The Initial significance level was set at $\alpha = 0.05$. To control for multiple comparisons and reduce the risk of Type I error, the Bonferroni correction was applied, resulting in an adjusted α level of 0.016. Data analysis was performed using IBM SPSS Statistics version 27.0. Data were entered into a spreadsheet and analyzed by comparing relevant variables and conducting appropriate statistical tests

Results

Sample Characteristics

A total of 74 participants were included in the study, with 36 in the training group and 38 in the control group. Baseline characteristics are presented in Table 2. Most participants in both groups were aged between 31 and 40 years (Training: 43.6%, Control: 57.9%). A higher proportion of participants in the training group had two children (63.0%) compared to the control group (37.0%), while a greater percentage of participants in the control group held a Bachelor's degree (97.4%) compared to the training group (86.1%). There were no significant differences between the training and control groups in terms of age ($p = .214$), number of children ($p = .164$), gender ($p = .897$), marital status ($p = .897$), job status ($p = .223$), shift working status ($p = .424$), position in the unit ($p = .545$), work experience ($p = .089$), or physical disease ($p = .240$).

Research Question Results

Work–Family Conflict

Overall WFC. The analysis of overall WFC revealed a significant reduction in the training group. Pretest scores for the training group (M = 54.19, SD = 11.17) decreased significantly posttest (M = 48.91, SD = 10.19), t(29) = 12.83,

Table 2. Demographic and Baseline Characteristics of the Study Population.

Variable		Training group (n = 36)		Control group (n = 38)		p value
		Frequency	Percentage (%)	Frequency	Percentage (%)	
Age (years)	20–30	8	42.1	11	57.9	.214[a]
	31–40	17	43.6	22	56.4	
	41–50	11	68.8	5	31.3	
Number of children	0	11	47.8	12	52.2	.164[b]
	1	8	34.8	15	65.2	
	2	17	63.0	10	37.0	
	≥3	0	0.0	1	100.0	
Gender	Male	3	42.9	4	57.1	1[a]
	Female	33	49.3	34	50.7	
Education	Associate	1	100.0	0	0.0	.119[a]
	Bachelor	31	45.6	37	54.4	
	Master and higher	4	80.0	1	20.0	
Marital status	Unmarried	9	47.4	10	52.6	.897[b]
	Married	27	49.1	28	50.9	
Job status	Formal	23	54.8	19	45.2	.223[b]
	Informal	13	40.6	19	59.4	
Shift working status	Fixed	4	66.7	2	33.3	.424[b]
	Nonfixed	32	47.1	36	52.9	
Position in the unit	Unit manager	2	66.7	1	33.3	.545[b]
	Shift manager	7	53.8	6	46.2	
	Nurse	24	44.4	30	55.6	
	Staff	3	75.0	1	25.0	
Work experience (years)	Less than10	11	34.4	21	65.6	.089[b]
	11–20	21	60.0	14	40.0	
	Higher than21	4	57.1	3	42.9	
Physical disease	Sufferer	0	0.0	3	100.0	.240[b]
	Healthy	36	50.7	35	49.3	
Psychological disease	Sufferer	0	0.0	0	0.0	-
	Healthy	36	50.7	38	51.4	

[a]Chi-square test.
[b]Fisher's exact test.

$p < 0.001$. In contrast, the control group showed no significant change in WFC, with pretest scores (M = 54.47, SD = 11.01) and posttest scores (M = 54.81, SD = 11.01) being very similar, t(29) = −1.70, p = .098. The comparison between groups using one-way ANCOVA demonstrated a significant group effect, $F_{(1, 58)} = 29.90$, $p < .001$, with a large effect size (partial eta-squared = 0.296).

Time-Based WFC. The training group demonstrated a significant reduction in time-based WFC based on the paired t-test, with pretest scores (M = 19.61) decreasing significantly to posttest scores (M = 18.05), t(29) = 5.92, $p < .001$. However, the one-way ANCOVA comparing the training and control groups did not yield a significant result (F = 2.09, p = .153), indicating no clear between-group difference after controlling for covariates. The small effect size (partial eta-squared = 0.029) suggests that while the training group showed improvement, the impact was not

large enough to produce a detectable difference in the ANCOVA analysis.

Several factors could explain these mixed results, including individual variability in response to the training and the relatively low baseline WFC in the control group, which left little room for improvement. The small effect size in the ANCOVA and potential power limitations of the test may have also contributed to the nonsignificant between-group comparison.

Strain-Based WFC. Strain-based WFC also showed significant reductions in the training group. Pretest scores (M = 17.75, SD = 4.23) decreased significantly posttest (M = 15.00, SD = 3.74), t(29) = 10.02, $p < .001$. Conversely, the control group's strain-based WFC scores did not change significantly, with pretest (M = 17.79, SD = 4.67) and posttest (M = 17.97, SD = 4.50) scores being nearly identical, t(29) = −1.31, p = .198. One-way ANCOVA indicated a significant

effect of the group, $F_{(1, 58)} = 27.42$, $p < .001$, with a large effect size (partial eta-squared = 0.279).

Behavior-Based WFC. Behavior-based WFC demonstrated a significant reduction in the training group. Pretest scores (M = 16.83, SD = 4.64) decreased significantly posttest (M = 15.86, SD = 4.55), t(29) = 5.26, $p < .001$. The control group showed no significant change, with pretest (M = 18.31, SD = 4.55) and posttest (M = 18.44, SD = 4.49) scores remaining almost identical, t(29) = −0.92, p = .364. Between-group comparisons using independent t-tests showed no significant difference In pretest scores, t(58) = −1.55, p = .133, but a significant posttest effect, $F_{(1, 58)} = 9.03$, p = .004, with a moderate effect size (partial eta-squared = 0.114).

Emotional Intelligence. Emotional Intelligence improved significantly in the training group. Pretest scores (M = 99.47, SD = 10.5) increased posttest (M = 106.36, SD = 9.52), t(29) = −13.42, $p < .001$. In contrast, the control group's EI showed no significant change, with pretest scores (M = 100.23, SD = 12.59) and posttest scores (M = 100.58, SD = 12.29) remaining nearly unchanged, t(29) = −1.50, p = .145. One-way ANCOVA revealed a significant between-group difference posttest, $F_{(1, 58)} = 12.75$, p = .001, with a moderate effect size (partial eta-squared = 0.152) (Table 3).

Discussion

The purpose of this study was to investigate the impact of EI training on levels of WFC, specifically focusing on overall WFC, its time-based, strain-based, and behavior-based subscales, and EI among ICU nurses.

Results indicated that EI training significantly reduced overall WFC and its various subscales, while simultaneously increasing EI scores in the training group compared to the control group. These findings align with previous research demonstrating the positive impact of EI training on reducing workplace conflicts (Sharma et al., 2024). Furthermore, the findings of Siahaan (2018) showed that individuals with lower levels of EI experienced higher levels of WFC. This study highlighted the negative effects of WFC on individuals, leading to increased stress and an inability to manage perceived conflicts.

Table 3. Pretest and Posttest Comparison of Work–Family Conflict and Emotional Intelligence Between Training and Control Groups.

Variables	Subscales	Groups	Pretest Mean (SD)	Posttest Mean (SD)	T	p value[a]
WFC[b]		Training	54.19 (11.17)	48.91 (10.19)	12.83	<.001
		Control	54.47 (11.01)	54.81 (11.01)	−1.70	.098
		F/t	−0.11[c]	29.90[d]		
		p value	.913[c]	<.001[d]		
		η_p^2 [e]		0.296[d]		
	Time-based WFC[b]	Training	19.61 (4.37)	18.05 (3.97)	5.92	<.001
		Control	18.36 (3.71.)	18.39 (3.74)	−0.15	.880
		F/t	1.33[c]	2.09[d]		
		p value	.188[c]	.153[d]		
		η_p^2 [e]		0.029[d]		
	Strain-based WFC[b]	Training	17.75 (4.23)	15.00 (3.74)	10.02	<.001
		Control	17.79 (4.67)	17.97 (4.50)	−1.31	.198
		F/t	−0.04[c]	27.42[d]		
		p value	.969[c]	<.001[d]		
		η_p^2 [e]		0.279[d]		
	Behavior-based WFC[b]	Training	16.83 (4.64)	15.86 (4.55)	5.26	<.001
		Control	18.31 (4.55)	18.44 (4.49)	−0.92	.364
		F/t	−1.55[c]	9.03[d]		
		p value	.133[c]	.004[d]		
		η_p^2 [e]		0.114[d]		
Emotional intelligence		Training	99.47 (10.5)	106.36 (9.52)	−13.42	<.001
		Control	100.23 (12.59)	100.58 (12.29)	−1.50	.145
		F/t	−0.28[c]	12.75[d]		
		p value	.775[c]	.001[d]		
		η_p^2 [e]		0.152[d]		

ANCOVA = analysis of covariance; WFC = work–family conflict.
[a]Paired *t*-test.
[b]Work–family conflict.
[c]Independent samples *t*-test.
[d]One-way ANCOVA.
[e]Partial eta-squared.

Özkan Tuncay et al. (2018) found that conflict management strategies such as integration, commitment, control, and compromise were positively correlated with EI scores. In contrast, Panorama and Jdaitawi (2011) found that overall EI scores were not correlated with WFC, and only some components of EI had weak correlations with WFC.

The emotional burden experienced by nurses in their work can be stressful and, if prolonged, can negatively impact the quality and safety of patient care and nurse–patient relationships (Jun et al., 2021). Conversely, EI skills enable nurses to cope with challenging situations, manage crises, and solve problems effectively. Consequently, enhancing EI improves nurses' efficiency, adaptability, and resilience. Emotional intelligence training empowers nurses to control, assess, and influence their environment. This skill helps them prioritize problems and organize their thoughts, thereby increasing their resilience and stamina when facing obstacles and providing a source of energy for dealing with conflicts (Pérez-Fuentes et al., 2018).

The current study demonstrated that EI training had a moderate to large effect on reducing strain-based WFC. According to Charkhabi et al. (2016), strain-based WFC is the most dangerous type of WFC, exerting the most negative impacts on nurses' physical and mental health (Charkhabi et al., 2016). The conservation of resources theory suggests that when a person's limited resources, such as time, energy, and attention, are excessively consumed in one domain (e.g., work). It inevitably leads to a decrease In resources available for other domains (e.g., family). When personal resources are depleted due to physical and psychological pressures, conflict can arise among employees (Zhang et al., 2020). Therefore, strain-based WFC does not directly refer to conflicting demands but to a situation where excessive involvement in one domain leads to physical and psychological strain, impairing performance in the other domain (Charkhabi et al., 2016).

Nurses in ICUs are particularly vulnerable to physical and mental health disturbances and, consequently, WFC due to the demanding and unusual nature of their work environment. Factors such as long shifts, mandatory overtime, severe nursing shortages, and a lack of managerial support for family needs have contributed to increased physical and psychological distress and higher levels of WFC among Iranian nurses (Jahanpour, 2016).

In the study by Boyatzis (2018), behavioral EI, as a facet of overall EI, was found to complement other levels of EI and have a significant impact on work and family performance as well as civic engagement. Similarly, Mao's study demonstrated that nurses could utilize newly acquired EI skills, leading to improved job performance and increased interaction and satisfaction between nurses and patients.

One of the key aspects of enhancing EI is improving intra- and interpersonal skills, allowing individuals to identify and regulate their own and others' emotions. These factors not only facilitate adaptation, stress management, and conflict resolution but also positively impact employee safety behaviors and the overall quality of nursing care (Meslhy Mohamed & Ibrahim Mohamed, 2022). Therefore, the findings of the current study are consistent with previous research, demonstrating that EI training can reduce behavior-based WFC.

The results indicated that the highest scores for WFC were related to time-based WFC, which was not significantly affected by EI training. However, the average score for time-based WFC in AlAzzam et al.'s (2017) study was higher than that found in our research (AlAzzam et al., 2017). In contrast, a study by Lineh et al. Sweden in 2014 reported lower levels of WFC compared to our study (Leineweber et al., 2014). These differences indicate variations in working hours and workload conditions across different regions.

In Iranian societies, individuals often work more than the prescribed hours per week to meet their living expenses. Increasing work hours and lacking sufficient time for family matters may lead to experiencing more time-based WFC (Ebrahimi et al., 2021). It appears that changing nursing management policies is prioritized over developing personal skills and conflict management to control time-based WFC.

In contrast to these findings, Dilmaghani et al. (2022) found higher levels of overall WFC among nurses. However, in a study conducted by Yarifard et al. (2023), the average scores of WFC were significantly lower than this study. These differences likely stem from cultural, economic, and institutional factors, as regions with collectivist cultures, gender gaps, and more economic challenges experience higher levels of WFC (Shamsi et al., 2022). Given that this study's population mostly consisted of married women with two children, these factors are expected to influence the level of WFC, as working women have significant responsibilities both at work and in family activities.

Conclusions

The findings of the current research indicate that EI training is effective in reducing WFC and enhancing EI among nurses in the ICU. Specifically, this training effectively reduced behavior-based WFC and strain-based WFC.

Implications for Practice

The consequences of WFC have significant impacts on employees' well-being and occupational success. Therefore, it is essential to investigate these dimensions and reduce the costs associated with increased conflicts. Moreover, EI skills are necessary to cope with various conflict resources. Organizations should recognize the importance of nurturing EI in the nursing profession. Since this profession is continuously linked to human well-being, conflict management skills are essential to ensure optimal care and improve professional well-being. Therefore, including EI training in the curriculum of nursing students and clinical staff is recommended, as it can

serve as an effective solution to improve their working conditions and family life.

Strengths, Limitations, and Suggestions

This study employed a rigorous methodology, including a randomized controlled trial design, a well-defined intervention, and a calculated sample size. Standardized measures and meticulous attention to the training program enhanced data reliability and internal validity. However, limitations included potential interaction between groups, an imbalanced gender distribution, and the absence of an active control group.

Future research should address these limitations by including a larger male sample, implementing an active control group, and investigating long-term effects. The findings suggest that while EI training can enhance individual skills, it may not fully address time-based WFC. A combined approach integrating EI training with organizational changes is warranted for more effective conflict mitigation.

Availability of Data and Materials

Datasets used or analyzed during the current study are available from the corresponding author upon reasonable request.

Author Contributions

Study concept and design: MA, MF, and FG; Acquisition of data: MA and AM; Analysis and interpretation data: MA and AM; Drafting the manuscript: MA, MF, FG, and AM; Review and critique of the manuscript: MA and MF.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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References

Al-Oweidat, I., Shosha, G. A., Baker, T. A., & Nashwan, A. J. (2023). The relationship between emotional intelligence and organizational commitment among nurses working in governmental hospitals in Jordan. *BMC Nursing*, *22*(1), 195. https://doi.org/10.1186/s12912-023-01361-2

AlAzzam, M., AbuAlRub, R. F., & Nazzal, A. H. (2017). The relationship between work–family conflict and job satisfaction among hospital nurses. *Nursing Forum*, 52(4), 278–288. https://doi.org/10.1111/nuf.12199

Armstrong, G. S., Atkin-Plunk, C. A., & Wells, J. (2015). The relationship between work-family conflict, correctional officer job stress, and job satisfaction. *Criminal Justice and Behavior*, *42*(10), 1066–1082. https://doi.org/10.1177/0093854815582221

Bandura, A. (2013). Regulative function of perceived self-efficacy. In *Personnel selection and classification* (pp. 261–271). Psychology Press.

Barnett, M. D., Martin, K. J., & Garza, C. J. (2019). Satisfaction with work-family balance mediates the relationship between workplace social support and depression among hospice nurses. *Journal of Nursing Scholarship*, *51*(2), 187–194. https://doi.org/10.1111/jnu.12451

Boyatzis, R. E. (2018). The behavioral level of emotional intelligence and its measurement. *Frontiers in Psychology*, *9*, 1438. https://doi.org/10.3389/fpsyg.2018.01438

Carlson, D. S., Kacmar, K. M., & Williams, L. J. (2000). Construction and initial validation of a multidimensional measure of work-family conflict. *Journal of Vocational Behavior*, *56*(2), 249–276. https://doi.org/10.1006/jvbe.1999.1713

Chang, H., Liu, R., Fang, X., & Li, X. (2022). Relationship between work-family conflict on work engagement in Chinese nurses: Multiple mediating effects of anxiety and emotional intelligence. *Journal of Nursing Management*, 30(6), 1776–1785.

Charkhabi, M., Sartori, R., & Ceschi, A. (2016). Work-family conflict based on strain: The most hazardous type of conflict in Iranian hospital nurses. *SA Journal of Industrial Psychology*, *42*(1), 1–10. https://doi.org/10.4102/sajip.v42i1.1264

Dilmaghani, R. B., Armoon, B., & Moghaddam, L. F. (2022). Work-family conflict and the professional quality of life and their sociodemographic characteristics among nurses: A cross-sectional study in Tehran, Iran. *BMC Nursing*, *21*(1), 289. https://doi.org/10.1186/s12912-022-01069-9

Dou, S., Han, C., Li, C., Liu, X., & Gan, W. (2022). Influence of emotional intelligence on the clinical ability of nursing interns: A structural equation model. *BMC Nursing*, *21*(1), 149. https://doi.org/10.1186/s12912-022-00933-y

Ebrahimi, B., Faraji, O., Nouri, B., & Valiee, S. (2021). Relationship between work-family conflict and perceived organizational support among nurses of kurdistan university of medical sciences. *Caspian Journal of Health Research*, *6*(4), 137–146. https://doi.org/10.32598/CJHR.6.4.5

Eltaybani, S., Mohamed, N., & Abdelwareth, M. (2019). Nature of nursing errors and their contributing factors in intensive care units. *Nursing in Critical Care*, *24*(1), 47–54. https://doi.org/10.1111/nicc.12350

Galletta, M., Portoghese, I., Melis, P., Gonzalez, C. I. A., Finco, G., D'Aloja, E., …, M. Campagna (2019). The role of collective affective commitment in the relationship between work-family conflict and emotional exhaustion among nurses: A multilevel modeling approach. *BMC Nursing*, *18*(1), 1–9. https://doi.org/10.1186/s12912-019-0329-z

Hosseini, M., Khankeh, H., & Hosseinzadeh, S. (2012). The effect of emotional intelligence education on job conflict in nurses. *Journal of Health Promotion Management*, *1*(1), 7–16.

Huang, H., Liu, L., Yang, S., Cui, X., Zhang, J., & Wu, H. (2019). Effects of job conditions, occupational stress, and emotional intelligence on chronic fatigue among Chinese nurses: A cross-sectional study. *Psychology Research and Behavior Management*, *12*, 351–360. https://doi.org/10.2147/PRBM.S207283

Jahanpour, F. (2016). Relationship between work-family conflict and employee engagement in female nurses working in intensive care units. *Acta Healthmedica*, *1*(2), 54–59. https://doi.org/10.19082/ah54

Jun, J., Ojemeni, M. M., Kalamani, R., Tong, J., & Crecelius, M. L. (2021). Relationship between nurse burnout, patient and organizational outcomes: Systematic review. *International Journal of Nursing Studies*, *119*, 103933. https://doi.org/10.1016/j.ijnurstu.2021.103933

Kanesan, P., & Fauzan, N. (2019). Models of emotional intelligence: A review. *E-Bangi*, *16*(1), 1–9.

Khosravan, S., Jor, A., Sadegh Moghadam, L., & Mazlom Shahri, B. (2018). The impact of family-centered educational-support program on work-family conflicts of female nurses in the City of Zabol in 2017. *Community Health Journal*, *12*(4), 1–10.

Labrague, L., Ballad, C., & Fronda, D. (2021). Predictors and outcomes of work-family conflict among nurses. *International Nursing Review*, *68*(3), 349–357. https://doi.org/10.1111/inr.12642

Leineweber, C., Westerlund, H., Chungkham, H. S., Lindqvist, R., Runesdotter, S., & Tishelman, C. (2014). Nurses' practice environment and work-family conflict in relation to burnout: A multilevel modeling approach. *PLoS One*, *9*(5), e96991. https://doi.org/10.1371/journal.pone.0096991

Liu, F., Zhou, H., Yuan, L., & Cai, Y. (2023). Effect of empathy competence on moral sensitivity in Chinese student nurses: The mediating role of emotional intelligence. *BMC Nursing*, *22*(1), 483. https://doi.org/10.1186/s12912-023-01650-w

Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) user's manual*. Multi-Health Systems.

Meslhy Mohamed, H., & Ibrahim Mohamed, A. (2022). Leaders' emotional intelligence and safety citizenship role definitions and behavior: The mediating effect of self-efficacy and resilience. *Egyptian Journal of Health Care*, *13*(1), 41–56. https://doi.org/10.21608/ejhc.2022.213859

Mohamed, B. E. S., Ghaith, R. F. A. H., & Ahmed, H. A. A. (2022). Relationship between work-family conflict, sleep quality, and depressive symptoms among mental health nurses. *Middle East Current Psychiatry*, *29*(1), 19. https://doi.org/10.1186/s43045-022-00183-3

Özkan Tuncay, F., Yaşar, Ö, & Sevimligül, G. (2018). Conflict management styles of nurse managers working in inpatient institutions: The case of Turkey. *Journal of Nursing Management*, *26*(8), 945–952. https://doi.org/10.1111/jonm.12609

Panorama, M., & Jdaitawi, M. (2011, January). Relationship between emotional intelligence and work-family conflict of university staff in Indonesia. In *Proceeding of the International Conference on Social Science, Economics and Art* (Vol. 272, p. 277).

Pérez-Fuentes, M. D. C., Molero Jurado, M. d. M., Gázquez Linares, J. J., & Oropesa Ruiz, N. F. (2018). The role of emotional intelligence in engagement in nurses. *International Journal of Environmental Research and Public Health*, *15*(9), 1915. https://doi.org/10.3390/ijerph15091915

Poku, C. A., Donkor, E., & Naab, F. (2020). Determinants of emotional exhaustion among nursing workforce in urban Ghana: A cross-sectional study. *BMC Nursing*, *19*(1), 1–10. https://doi.org/10.1186/s12912-020-00512-z

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, *9*(3), 185–211. https://doi.org/10.2190/DUGG-P24E-52WK-6CDG

Salovey, P. E., & Sluyter, D. J. (1997). *Emotional development and emotional intelligence: Educational implications*. Basic Books.

Shamsi, V., Hemmati, M., & Enayat, H. (2022). A systematic review of work-family conflict studies in Iran. *Sociology of Social Institutions*, *9*(19), 59–84. https://doi.org/10.22080/ssi.2022.23099.1978

Sharma, P., Dhanta, R., & Sharma, A. (2024). Emotional intelligence and conflict resolution in the workplace. In *Leveraging AI and emotional intelligence in contemporary business organizations* (pp. 102–121). IGI Global. https://doi.org/10.4018/979-8-3693-1143-1.ch006

Sharma, J., Dhar, R. L., & Tyagi, A. (2016). Stress as a mediator between work-family conflict and psychological health among the nursing staff: The moderating role of emotional intelligence. *Applied Nursing Research*, *30*, 268–275. https://doi.org/10.1016/j.apnr.2015.01.010

Siahaan, E. (2018). Evaluating the effect of work–family conflict and emotional intelligence in workplace: Review to increase employees' performance. *IOP Conference Series: Earth and Environmental Science*, *126*(1), 012045. https://doi.org/10.1088/1755-1315/126/1/012045

Soto-Rubio, A., Giménez-Espert, M. D. C., & Prado-Gascó, V. (2020). Effect of emotional intelligence and psychosocial risks on burnout, job satisfaction, and nurses' health during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *17*(21), 7998. https://doi.org/10.3390/ijerph17217998

Tran, Q. H. N. (2023). Exploring relationships among overload stress, work-family conflict, job satisfaction, person-organization fit, and organizational commitment in public organizations. *Public Organization Review*, *23*(2), 759–775. https://doi.org/10.1007/s11115-021-00589-3

Vahedian-Azimi, A., Hajiesmaeili, M., Kangasniemi, M., Fornés-Vives, J., Hunsucker, R. L., Rahimibashar, F., …, A. C. Miller (2019). Effects of stress on critical care nurses: A national cross-sectional study. *Journal of Intensive Care Medicine*, *34*(4), 311–322. https://doi.org/10.1177/0885066617696853

Wu, J., Li, Y., Lin, Q., Fan, Y., Zhang, J., Liu, Z., …, X. Zhong (2024). The mediating role of perceived social support between work-family conflict and presenteeism among ICU nurses working shift work in Chinese public hospitals: A cross-sectional investigation. *PLoS One*, *19*(8), e0308673. https://doi.org/10.1371/journal.pone.0308673

Yarifard, K., Abravesh, A., Sokhanvar, M., Mehrtak, M., & Mousazadeh, Y. (2023). Work-family conflict, burnout, and related factors among nurses during the COVID-19 pandemic in the northwest of Iran. *Work*, *76*(1), 47–59. https://doi.org/10.3233/WOR-220125

Yousefi, F. (2006). Reliability and validity of a measure of emotional intelligence in an Iranian sample. *Psychological Reports*, *98*(2), 541–548. https://doi.org/10.2466/pr0.98.2.541-548

Zainal, N., Zawawi, D., Aziz, Y. A., & Ali, M. H. (2020). Work-family conflict and job performance: The moderating effect of social support among employees in Malaysian service sector. *International Journal of Business and Society*, *21*(1), 79–95. https://doi.org/10.33736/ijbs.3224.2020

Zandian, H., Sharghi, A., & Moghadam, T. Z. (2020). Quality of work life and work-family conflict: A cross-sectional study among nurses in teaching hospitals. *Nursing Management*, *27*(1), 23–29. https://doi.org/10.7748/nm.2020.e1881

Zeb, S., Akbar, A., Gul, A., Haider, S. A., Poulova, P., & Yasmin, F. (2023). Work-Family conflict, emotional intelligence, and general self-efficacy among medical practitioners during the COVID-19 pandemic [retraction]. *Psychology Research and Behavior Management*, *16*, 4293–4294. https://doi.org/10. 2147/PRBM.S445547

Zhang, S. J., Chen, Y. Q., & Sun, H. (2015). Emotional intelligence, conflict management styles, and innovation performance: An empirical study of Chinese employees. *International Journal of Conflict Management*, *26*(4), 450–478. https://doi.org/10. 1108/IJCMA-06-2014-0039

Zhang, Y., Rasheed, M. I., & Luqman, A. (2020). Work-family conflict and turnover intentions among Chinese nurses: The combined role of job and life satisfaction and perceived supervisor support. *Personnel Review*, *49*(5), 1140–1156. https://doi.org/ 10.1108/PR-01-2019-0017