

Comparison of the Effectiveness of Healthy Lifestyle Training and Resilience Training on Occupational Stress and Occupational Self-Efficacy among Shabestar Healthcare Workers

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ABSTRACT

The present study aimed to compare the effectiveness of healthy lifestyle training and resilience training in reducing occupational stress and enhancing occupational self-efficacy among employees of healthcare centers in Shabestar County. This quasi-experimental study employed a pretest–posttest design with two intervention groups and one control group. The statistical population consisted of 398 employees working in healthcare centers in Shabestar County in 2025. A total of 45 participants were selected through convenience sampling and randomly assigned to healthy lifestyle training, resilience training, and control groups, with 15 participants in each group. Data were collected using the Occupational Stress Questionnaire developed by Parker and DeCotiis and the Occupational Self-Efficacy Questionnaire developed by Wilk and Moynihan. Both intervention groups received nine sessions lasting approximately 60–90 minutes, while the control group received no intervention. Data were analyzed using mixed-design analysis of variance and Bonferroni post-hoc tests. For occupational stress, the effect of time was significant, $F = 24.70$, $p < 0.001$, $\eta^2 = 0.37$, and the group $\times$ time interaction was also significant, $F = 7.22$, $p < 0.01$, $\eta^2 = 0.26$. For occupational self-efficacy, the effect of time was significant, $F = 72.73$, $p < 0.001$, $\eta^2 = 0.63$, and the group $\times$ time interaction was significant, $F = 26.37$, $p < 0.001$, $\eta^2 = 0.55$. Bonferroni comparisons indicated significant differences between the intervention groups, with healthy lifestyle training producing greater reductions in occupational stress and greater increases in occupational self-efficacy than resilience training. Both healthy lifestyle training and resilience training were effective in reducing occupational stress and improving occupational self-efficacy among healthcare workers; however, healthy lifestyle training demonstrated greater effectiveness and may therefore represent a more comprehensive intervention for promoting occupational psychological health in healthcare settings.

Key words: Occupational Stress; Occupational Self-Efficacy; Healthy Lifestyle Training; Resilience Training; Healthcare Workers

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Introduction

Healthcare organizations depend heavily on the psychological health, professional competence, and sustained functioning of their human resources. Employees working in healthcare settings are continuously exposed to demanding interpersonal interactions, substantial responsibility for patients' well-being, time

pressure, organizational constraints, unpredictable workloads, and situations in which errors may carry serious consequences. These occupational demands can accumulate over time and affect employees' cognitive, emotional, behavioral, and physiological functioning. Consequently, protecting the mental health of healthcare workers is not only an individual health concern but also an organizational and public-health priority because the psychological functioning of employees can influence service quality, continuity of care, workplace safety, absenteeism, staff retention, and organizational effectiveness. Recent evidence indicates that occupational stress remains common among healthcare personnel and is shaped by a combination of workload, organizational conditions, professional responsibilities, and psychosocial factors (1, 2). Accordingly, identifying modifiable psychological and behavioral factors that protect healthcare employees from occupational pressure has become increasingly important.

Occupational stress is one of the most prominent psychological problems experienced by healthcare workers. It arises when employees perceive that environmental demands exceed the personal, psychological, or organizational resources available to manage them effectively. Although a moderate degree of pressure can sometimes facilitate alertness and performance, persistent or excessive occupational stress can impair concentration, emotional regulation, decision-making, interpersonal functioning, and overall well-being. Healthcare settings may be particularly conducive to chronic stress because employees must simultaneously manage clinical responsibilities, administrative requirements, interpersonal demands, and uncertainty. Research among healthcare professionals has consistently documented substantial levels of occupational stress and has identified multiple occupational and individual factors associated with its development (1, 2). Iranian research has similarly demonstrated that job stress is meaningfully associated with psychological processes such as cognitive emotion regulation and maladaptive patterns of work involvement among medical trainees, highlighting the importance of psychological coping resources in demanding health-related occupations (3).

The consequences of persistent occupational stress may extend beyond temporary emotional discomfort. Repeated exposure to stressful professional experiences can contribute to exhaustion, reduced engagement, impaired work performance, psychological distress, and burnout. For healthcare professionals, these consequences are particularly concerning because occupational strain may interfere with both personal well-being and the capacity to provide effective care. Stressful and potentially adverse healthcare events can also challenge professionals' beliefs about their competence and preparedness, creating a need for interventions that strengthen adaptive coping before and after exposure to difficult workplace situations (4). Reviews of interventions designed to reduce stress and prevent burnout among healthcare professionals further suggest that stress management should be approached proactively and through accessible preventive strategies rather than only after substantial psychological impairment has developed (5).

One psychological construct that may play a particularly important role in employees' responses to occupational demands is occupational self-efficacy. Self-efficacy generally refers to individuals' beliefs about their capacity to organize and perform the actions required to cope successfully with specific tasks, challenges, or circumstances. In occupational contexts, self-efficacy reflects employees' confidence in their ability to meet work demands, solve job-related problems, persist when difficulties occur, and maintain effective performance under pressure. Among healthcare workers, higher self-efficacy may facilitate more adaptive interpretations of demanding situations, greater persistence, stronger problem-solving behavior,

and more effective coping with stressful events. Evidence from nursing populations has shown that self-efficacy is meaningfully associated with perceived stress and emotional functioning (6). Furthermore, resilience and self-efficacy appear to operate as important psychological resources in reducing adverse professional outcomes such as compassion fatigue among nurses (7).

Occupational self-efficacy can therefore be considered both a protective psychological resource and a potentially modifiable intervention target. Employees who believe they can effectively manage professional challenges may be more likely to approach demanding tasks constructively, interpret setbacks as manageable, seek solutions, and remain persistent. Conversely, low occupational self-efficacy may increase perceptions of helplessness and make workplace demands appear more threatening or uncontrollable. Self-efficacy is also relevant to innovative and adaptive behavior in organizational environments, particularly among knowledge workers whose professional roles require initiative, flexibility, and effective management of complex demands (8). Accordingly, interventions capable of increasing occupational self-efficacy while simultaneously reducing occupational stress may have particularly broad value for healthcare organizations.

The relationship between occupational stress and self-efficacy is not merely theoretical. Empirical findings indicate that employees with stronger perceived capabilities tend to experience occupational demands differently from those who doubt their capacity to cope. In nurses, self-efficacy has been identified as an important predictor of perceived stress, suggesting that beliefs regarding personal competence may influence the psychological burden associated with professional demands (6). Similarly, findings concerning resilience, self-efficacy, and compassion fatigue indicate that psychological resources can influence how healthcare professionals respond to repeated emotional and occupational pressures (7). These findings support the development of interventions that do not focus exclusively on reducing external stressors but also strengthen the internal resources through which employees interpret and manage those stressors.

One potentially useful approach is healthy lifestyle training. A healthy lifestyle is multidimensional and generally incorporates health-promoting behaviors such as appropriate nutrition, regular physical activity, adequate sleep, stress-management practices, constructive social relationships, avoidance of harmful behaviors, and intentional self-care. Lifestyle-based interventions are particularly relevant to healthcare professionals because occupational demands can disrupt precisely these protective behaviors. Irregular work schedules, fatigue, time limitations, and chronic pressure may interfere with exercise, sleep, nutrition, recovery, and interpersonal engagement, thereby creating a cycle in which occupational demands contribute to unhealthy behaviors and unhealthy behaviors, in turn, reduce the employee's capacity to tolerate occupational demands. For this reason, lifestyle-oriented programs attempt to improve psychological functioning by targeting daily behavioral patterns in addition to cognitive and emotional processes.

Evidence increasingly supports the relevance of lifestyle promotion for healthcare professionals. A systematic review of lifestyle health-promotion interventions among nurses showed that such interventions have been used to improve a range of health behaviors and health-related outcomes in a workforce that often experiences substantial occupational demands (9). More recently, lifestyle medicine education has received growing attention within health-professional curricula, reflecting recognition that health-related behavior change is relevant not only to patients but also to the professional development and well-being of healthcare providers themselves (10). Employee health and wellness coaching programs likewise suggest that comprehensive approaches incorporating behavioral health promotion can contribute to improvements in

perceived stress and broader physical and mental health outcomes among employees in hospital and university environments (11).

Healthy lifestyle education may be particularly valuable because behavioral change can generate repeated mastery experiences that strengthen self-efficacy. When individuals establish achievable health-related goals and successfully modify behaviors such as physical activity, sleep, stress management, or nutrition, they obtain concrete evidence of their capacity to regulate their own behavior. These experiences can generalize to greater confidence in dealing with other life and occupational challenges. Research has shown that lifestyle-change training can improve self-efficacy and related psychological beliefs, including expectations regarding the consequences of personal behavior (12). Cognitive-behavioral healthy lifestyle training has similarly been associated with improved self-efficacy and psychological well-being in populations experiencing significant health-related challenges (13). Moreover, healthy lifestyle education has demonstrated beneficial effects on resilience and job satisfaction among employees, further illustrating the potential of lifestyle-oriented interventions to influence both individual psychological resources and occupational outcomes (14).

Lifestyle interventions may also address occupational stress through several complementary pathways. Regular physical activity can provide opportunities for psychological recovery and improve perceived vitality; sleep-related behaviors may reduce fatigue and enhance emotional regulation; relaxation and mindfulness practices may reduce physiological and cognitive arousal; supportive social behaviors can strengthen interpersonal resources; and structured goal setting may increase perceptions of personal control. These mechanisms are relevant because occupational stress is rarely generated by a single factor. Instead, it generally emerges from interactions among environmental demands, physiological strain, psychological appraisal, coping behavior, and social resources. Digital and behavioral interventions targeting stress among healthcare professionals have increasingly incorporated multiple components for precisely this reason (5). Health and wellness coaching findings likewise suggest that interventions simultaneously addressing behavioral and psychosocial dimensions may produce meaningful improvements in employees' perceived stress and health (11).

A second prominent approach for strengthening adaptation to occupational demands is resilience training. Resilience refers broadly to the capacity to maintain or regain adaptive functioning when confronted with adversity, stress, disruption, or significant challenge. In occupational settings, resilience does not imply the absence of stress; rather, it reflects the ability to respond flexibly and effectively despite stressful conditions. Resilience training programs commonly target cognitive appraisal, emotional regulation, problem-solving, optimism, mindfulness, coping skills, interpersonal effectiveness, and the use of social support. These skills may be especially important for healthcare workers because many occupational stressors cannot be completely eliminated. When workloads, emergencies, emotionally difficult interactions, or organizational constraints are unavoidable, strengthening employees' ability to cope with these experiences becomes an important complementary strategy.

Research has provided support for resilience-oriented interventions in healthcare populations. A mindfulness-based resilience training program for healthcare professionals demonstrated the potential for structured resilience development to improve psychological functioning among individuals experiencing substantial emotional difficulties (15). Resilience interventions have also been used specifically to prepare

healthcare professionals and students for stressful healthcare events, with findings indicating that structured preparation may enhance employees' ability to manage difficult experiences (4). More recent randomized evidence among mental health nurses has further supported the potential utility of resilience-promoting interventions within healthcare workplaces (16). Such findings are important because they demonstrate that resilience is not merely a stable personality characteristic but can be strengthened through organized educational and psychological programs.

The effects of resilience training may extend beyond immediate stress reduction. Training in adaptive coping, cognitive restructuring, problem-solving, emotional regulation, and realistic optimism can potentially strengthen individuals' perceptions of competence and control. Successful application of these skills may, in turn, reinforce self-efficacy by helping employees recognize that they possess strategies for dealing with occupational difficulties. Resilience training has produced beneficial outcomes in diverse populations, including reductions in burnout among students (17) and improvements in coping strategies, mental health, and quality of life among older adults (18). Although these populations differ from healthcare employees, such findings support the broader proposition that resilience-related skills are teachable and can contribute to adaptive psychological outcomes.

Social support is another mechanism linking resilience to occupational adjustment. Healthcare work is inherently relational, and employees frequently depend on colleagues, supervisors, teams, and professional networks when coping with difficult events. Recent evidence among medical personnel responding to public-health emergencies indicates that social support, psychological resilience, and positive coping are closely interconnected (19). Thus, resilience training that encourages constructive communication, support seeking, collaborative coping, and adaptive interpretation of stressful experiences may strengthen not only individual psychological capacities but also interpersonal resources. Workplace resilience programs are increasingly being designed for broader organizational dissemination, including train-the-trainer models intended to make evidence-based resilience practices more scalable and sustainable within workplace systems (20).

Despite evidence supporting both healthy lifestyle training and resilience training, an important question concerns their relative effectiveness. The two approaches overlap in certain domains, such as stress management, behavioral self-regulation, and strengthening adaptive coping, but they differ in their primary emphasis. Resilience training is predominantly directed toward psychological adaptation to adversity through cognitive, emotional, and interpersonal skills. Healthy lifestyle training, in contrast, adopts a broader behavioral framework that may simultaneously address physical health behaviors, stress-management techniques, social functioning, and beliefs regarding personal agency. This distinction may be clinically and organizationally meaningful. If occupational stress among healthcare personnel results from interacting physical, psychological, and social pressures, a comprehensive lifestyle intervention may influence a wider range of mechanisms. Conversely, resilience training may offer greater specificity in strengthening the psychological skills needed to confront unavoidable occupational adversity.

Existing intervention research does not provide a simple basis for determining which approach should be prioritized. Resilience interventions have demonstrated promising effects among healthcare professionals and nurses (15, 16), while contemporary workplace initiatives indicate that resilience training can be disseminated through scalable organizational models (20). At the same time, lifestyle interventions have shown benefits for stress, health-related behaviors, psychological well-being, and self-efficacy (9, 11-13).

Lifestyle medicine education is also increasingly regarded as relevant to the education and development of healthcare professionals (10). These parallel lines of evidence establish the value of both approaches but do not adequately resolve which intervention produces stronger improvement in occupational stress and occupational self-efficacy when the two are evaluated under comparable conditions.

This comparative question has important practical implications. Healthcare organizations frequently operate under constraints related to staffing, finances, training time, and access to specialized mental-health services. Consequently, administrators cannot always implement multiple intensive interventions simultaneously and may need evidence indicating which programs offer the greatest benefit for important occupational outcomes. Programs that can reduce occupational stress while strengthening employees' beliefs in their professional competence may have particular organizational value because they address both psychological burden and adaptive capacity. Moreover, scalable preventive interventions may reduce dependence on approaches implemented only after substantial distress or burnout has developed. The growing literature on digitally supported stress interventions (5), workplace dissemination of resilience programs (20), lifestyle-based health promotion (9), and wellness coaching (11) reflects a broader shift toward preventive, accessible, and sustainable workforce mental-health strategies.

The need for comparative intervention research is especially relevant in healthcare systems where local organizational conditions, sociocultural factors, employment structures, and available resources may influence intervention effectiveness. Evidence obtained in one professional or cultural setting cannot necessarily be assumed to generalize uniformly to another. Studies of occupational stress among healthcare personnel show that both individual and workplace factors contribute to employees' stress experiences (1, 2), while research on occupational and psychological variables in Iranian populations similarly indicates the relevance of context-specific patterns of stress, cognitive regulation, lifestyle behavior, and workplace functioning (3, 8, 14). Accordingly, examining structured interventions among healthcare employees within the local context can provide evidence that is more directly applicable to organizational planning and occupational-health practice.

Taken together, previous research supports occupational stress and occupational self-efficacy as important and interrelated aspects of healthcare workers' psychological functioning. Self-efficacy appears to serve as a protective resource in managing demanding professional experiences (6, 7), while occupational stress represents a persistent challenge across healthcare environments (1, 2). Healthy lifestyle training may strengthen psychological functioning through behavioral change, improved self-regulation, health promotion, social resources, and mastery experiences (10, 12, 13), whereas resilience training may enhance adaptive coping, emotional regulation, problem-solving, social support, and recovery from adversity (4, 15, 16, 19). Nevertheless, direct comparative evidence regarding their relative effects on both occupational stress and occupational self-efficacy among healthcare center employees remains limited, creating an important empirical and practical gap.

Therefore, the present study aimed to compare the effectiveness of healthy lifestyle training and resilience training in reducing occupational stress and enhancing occupational self-efficacy among employees of healthcare centers in Shabestar County.

Methods and Materials

Study Design and Participants

The present study employed a quasi-experimental pretest–posttest design with two intervention groups and one control group. The statistical population consisted of all employees working in healthcare centers in Shabestar County in 2025, totaling 398 individuals. Participants were recruited through convenience sampling and subsequently assigned to the study groups. The required sample size was estimated using G*Power software based on Cohen's guidelines. With a significance level of 0.05, statistical power of 0.80, and a medium-to-large effect size of $f = 0.35$, the minimum required sample was calculated as 45 participants. Accordingly, 45 eligible employees were included in the study and randomly allocated to three equal groups: healthy lifestyle training, resilience training, and control, with 15 participants in each group. The inclusion criteria were full-time employment at a healthcare center in Shabestar County, at least one year of work experience, willingness to participate in the study, provision of written informed consent, and absence of severe psychological or physical disorders that could interfere with participation in the intervention sessions. The exclusion criteria included absence from more than two intervention sessions, failure to complete the study questionnaires, development of a physical or psychological condition that prevented continuation in the study, and voluntary withdrawal at any stage of the research. After obtaining the necessary administrative permissions and receiving access to the employee list, eligible participants were recruited and assigned to the three study groups. The two intervention groups attended their respective training sessions in the conference hall of Shabestar Healthcare Center, whereas the control group received no structured psychological or lifestyle intervention during the study period. Ethical principles were observed throughout the research process. Participants were informed about the purpose and procedures of the study, participation was voluntary, written informed consent was obtained, confidentiality of personal information and study data was maintained, and participants were informed of their right to withdraw from the study at any time without any adverse consequences. The study was approved by the Ethics Committee of Islamic Azad University, Tabriz Branch, under the ethical code IR.TABRIZ.IAU.REC.1404.471.

Data Collection Tools

Occupational self-efficacy was assessed using the Occupational Self-Efficacy Questionnaire developed by Wilk and Moynihan in 2005. The questionnaire assesses individuals' perceived confidence in their ability to successfully perform occupational responsibilities and cope effectively with work-related demands. Items are rated on a five-point Likert scale ranging from 1, indicating very low perceived ability, to 5, indicating very high perceived ability. Higher total scores therefore represent higher levels of occupational self-efficacy. The Persian version of the questionnaire has demonstrated acceptable psychometric properties in previous Iranian research. Nikkhah Farkhani and Daneshvari reported a Cronbach's alpha coefficient of 0.75, indicating satisfactory internal consistency, and criterion validity was supported by a significant correlation of $r = 0.67$ with innovative behavior. In the present study, the internal consistency of the questionnaire was reassessed using Cronbach's alpha, and a coefficient of 0.89 was obtained, indicating good reliability for the study sample.

Occupational stress was measured using the Occupational Stress Questionnaire developed by Parker and DeCotiis in 1983. The instrument consists of 13 items designed to assess employees' perceptions and experiences of stress arising from occupational demands. Each item is scored on a five-point Likert scale ranging from 1, representing strongly disagree, to 5, representing strongly agree, with higher scores indicating greater levels of occupational stress. In the original development study, Parker and DeCotiis reported a Cronbach's alpha coefficient of 0.86, demonstrating satisfactory internal consistency. The psychometric properties of the instrument have also been examined in Iran. Irji Mimandi and Sohrabi evaluated its construct validity using confirmatory factor analysis and supported its suitability for use in Iranian occupational populations. In the present study, reliability was evaluated again using Cronbach's alpha, and the resulting coefficient was 0.82, indicating satisfactory internal consistency.

Interventions

The study included two structured intervention programs, namely resilience training and healthy lifestyle promotion training, each consisting of nine sessions lasting approximately 60–90 minutes. The resilience training program was developed based on the Pennsylvania Resilience Program and related empirical studies. In the first session, participants became familiar with the trainer, the purpose and structure of the program, group expectations, and the principles of trust and participation, and they were asked to record stressful experiences occurring in daily life. The second session focused on the relationship among adverse events, beliefs, and emotional consequences through training in the ABC model, with participants practicing the identification of links between stressful situations, cognitions, and emotional responses. The third session addressed optimistic explanatory styles and contrasted optimistic and pessimistic interpretations of adverse events. The fourth session focused on identifying and challenging catastrophic beliefs by gathering evidence, generating alternative interpretations, reducing catastrophizing, and developing practical action plans. The fifth session introduced a structured five-step problem-solving approach and provided opportunities to apply it to actual personal and occupational difficulties. The sixth session addressed assertiveness and interpersonal negotiation through role-playing and group exercises intended to improve self-expression, reduce interpersonal conflict, and strengthen supportive relationships. The seventh session integrated resilience principles with health-oriented behaviors and encouraged participants to monitor nutrition, physical activity, and sleep patterns. The eighth session focused on stress management and social support through diaphragmatic breathing, mindfulness exercises, and strategies for seeking and providing support. The final session reviewed the skills developed throughout the program, discussed participants' challenges and achievements, reinforced self-efficacy, and encouraged each participant to formulate a personal three-month resilience plan.

The healthy lifestyle promotion intervention was based on cognitive-behavioral principles and previous lifestyle-promotion research. During the first session, participants were introduced to the aims and structure of the program, evaluated their current lifestyle behaviors, and established individualized health-related goals. The second session focused on balanced nutrition, identification of healthy and unhealthy dietary patterns, analysis of food choices, and strengthening confidence in making appropriate nutritional decisions. The third session addressed physical activity, including aerobic, strength, and flexibility exercises, and emphasized the incorporation of regular physical activity into daily routines. The fourth session focused on

stress management and relaxation and included diaphragmatic breathing, mindfulness, and guided meditation. The fifth session addressed sleep hygiene and the importance of social relationships, with participants encouraged to improve sleep patterns and increase constructive social interactions. The sixth session focused on reducing risky or unhealthy behaviors while developing positive thinking and gratitude practices. The seventh session integrated broader health principles, life skills, mental health, and healthy behaviors and encouraged participants to apply skills such as anger management to lifestyle-related challenges. The eighth session emphasized self-efficacy and social support by encouraging participants to recognize small behavioral achievements, share successful experiences, and draw on supportive interpersonal resources. In the ninth session, all program components were reviewed, participants reflected on behavioral changes and challenges, and each participant developed a personal healthy lifestyle plan covering the following three to six months with specific weekly goals. The control group did not receive either training program during the intervention period.

Data Analysis

The collected data were analyzed using descriptive and inferential statistical methods. Descriptive statistics, including frequencies and percentages for demographic variables and means and standard deviations for occupational stress and occupational self-efficacy, were calculated for each study group at the pretest and posttest stages. Before conducting inferential analyses, the assumptions required for parametric statistical testing were examined. The normality of the distributions was assessed using skewness, kurtosis, and the Shapiro–Wilk test. Homogeneity of variances was examined using Levene’s test, and equality of covariance matrices was assessed using Box’s M test. After confirmation of the relevant assumptions, mixed-design analysis of variance, also referred to as between-within subjects ANOVA, was used to evaluate changes over time, differences among the three groups, and group-by-time interaction effects for occupational stress and occupational self-efficacy. Where significant group differences were identified, Bonferroni post-hoc comparisons were conducted to determine which intervention groups differed significantly from one another and from the control group. Statistical significance was interpreted using an alpha level of 0.05, while more stringent significance levels were reported where applicable. Effect sizes were expressed using eta squared to indicate the magnitude of intervention effects.

Findings and Results

A total of 45 healthcare employees participated in the study, with 15 participants assigned to each of the resilience training, healthy lifestyle training, and control groups. In the resilience training group, 8 participants (53.3%) were female and 7 (46.7%) were male; in the healthy lifestyle training group, 6 participants (40.0%) were female and 9 (60.0%) were male; and in the control group, 7 participants (46.7%) were female and 8 (53.3%) were male. Regarding age, most participants in the resilience training group were 31–40 years old ($n = 8$, 53.3%), whereas 6 participants (40.0%) in the healthy lifestyle training group were aged 31–40 years, and the largest age category in the control group was 41–50 years ($n = 6$, 40.0%). In terms of educational level, 9 participants (60.0%) in the resilience training group had an associate or bachelor’s degree, compared with 6 participants (40.0%) in both the healthy lifestyle training and control groups. Master’s degrees were held by 4 participants (26.7%) in the resilience group and by 6 participants (40.0%)

in each of the other two groups, while PhD degrees were reported by 2 participants (13.3%) in the resilience group and 3 participants (20.0%) in each of the healthy lifestyle and control groups. Regarding work experience, 8 participants (53.3%) in the resilience group, 7 (46.7%) in the healthy lifestyle group, and 8 (53.3%) in the control group had 6–10 years of work experience. Overall, the demographic characteristics indicated relatively comparable distributions across the three groups.

Table 1. Descriptive Statistics of Occupational Stress and Occupational Self-Efficacy by Group and Measurement Time

Variable	Group	Measurement	M	SD	Skewness	Kurtosis	Shapiro–Wilk p
Occupational stress	Resilience training	Pretest	36.86	4.65	0.67	1.21	0.29
		Posttest	32.86	2.55	0.31	0.49	0.12
	Healthy lifestyle training	Pretest	35.93	2.52	-0.99	1.78	0.44
		Posttest	27.33	2.91	-1.29	1.65	0.84
	Control	Pretest	36.13	5.26	0.01	0.73	0.06
		Posttest	35.66	5.70	0.24	0.21	0.68
Occupational self-efficacy	Resilience training	Pretest	10.80	3.14	0.45	0.29	0.35
		Posttest	14.07	1.03	-0.15	0.01	0.54
	Healthy lifestyle training	Pretest	10.53	2.85	-0.52	0.09	0.31
		Posttest	17.93	0.79	0.13	-1.34	0.09
	Control	Pretest	10.73	3.12	0.28	0.04	0.21
		Posttest	10.80	1.09	-0.14	-0.67	0.20

As shown in Table 1, the pretest mean occupational stress scores were relatively similar across the resilience training ($M = 36.86$, $SD = 4.65$), healthy lifestyle training ($M = 35.93$, $SD = 2.52$), and control ($M = 36.13$, $SD = 5.26$) groups. At posttest, occupational stress decreased to 32.86 ($SD = 2.55$) in the resilience training group and to 27.33 ($SD = 2.91$) in the healthy lifestyle training group, whereas the control group showed only a slight decrease to 35.66 ($SD = 5.70$). For occupational self-efficacy, the pretest means were also comparable across the resilience training ($M = 10.80$, $SD = 3.14$), healthy lifestyle training ($M = 10.53$, $SD = 2.85$), and control ($M = 10.73$, $SD = 3.12$) groups. At posttest, occupational self-efficacy increased to 14.07 ($SD = 1.03$) in the resilience training group and to 17.93 ($SD = 0.79$) in the healthy lifestyle training group, while the control group remained nearly unchanged at 10.80 ($SD = 1.09$). These descriptive results indicate that both interventions were associated with improvements in the dependent variables, with greater changes observed in the healthy lifestyle training group.

Before conducting the mixed-design analysis of variance, the relevant statistical assumptions were examined. The skewness and kurtosis values reported in Table 1 were within acceptable ranges, and all Shapiro–Wilk test results were nonsignificant ($p > 0.05$), supporting the assumption of normality. For occupational stress, equality of covariance matrices was supported by Box’s M test (Box’s $M = 18.34$, $p > 0.05$), and Levene’s test confirmed the homogeneity of variances ($F = 2.28$, $p > 0.05$). The corresponding multivariate test also indicated a significant intervention effect (Wilks’ Lambda = 0.74, $F = 7.22$, $p < 0.01$, $\eta^2 = 0.26$). For occupational self-efficacy, Box’s M test was likewise nonsignificant (Box’s $M = 3.25$, $p > 0.05$), confirming equality of covariance matrices, and Levene’s test supported the homogeneity of variances ($F = 0.06$, $p > 0.05$). The multivariate test for occupational self-efficacy also indicated a significant intervention effect (Wilks’ Lambda = 0.44, $F = 26.37$, $p < 0.01$, $\eta^2 = 0.56$). Therefore, the assumptions required for conducting the mixed between-within subjects analysis of variance were considered satisfied.

Table 2. Mixed-Design Analysis of Variance for Occupational Stress and Occupational Self-Efficacy

Variable	Effect	Sum of Squares	Mean Square	F	p	η^2
Occupational stress	Time	426.84	426.84	24.70	<0.001	0.37
	Group $\times$ Time	249.48	124.74	7.22	<0.01	0.26
Occupational self-efficacy	Time	284.44	284.44	72.73	<0.001	0.63
	Group $\times$ Time	206.44	103.37	26.37	<0.001	0.55

As presented in Table 2, the main effect of time on occupational stress was statistically significant, $F = 24.70$, $p < 0.001$, $\eta^2 = 0.37$, indicating that occupational stress scores changed significantly from pretest to posttest across the study groups. More importantly, the group $\times$ time interaction was also significant, $F = 7.22$, $p < 0.01$, $\eta^2 = 0.26$, demonstrating that the magnitude of change in occupational stress differed significantly among the resilience training, healthy lifestyle training, and control groups. For occupational self-efficacy, the main effect of time was statistically significant, $F = 72.73$, $p < 0.001$, $\eta^2 = 0.63$, indicating a significant overall change from pretest to posttest. The group $\times$ time interaction was likewise statistically significant, $F = 26.37$, $p < 0.001$, $\eta^2 = 0.55$, showing that changes in occupational self-efficacy differed significantly across the three groups. The effect sizes further indicated substantial intervention-related changes, particularly for occupational self-efficacy.

Table 3. Bonferroni Post-Hoc Comparisons for Occupational Stress and Occupational Self-Efficacy

Variable	Comparison	Mean Difference	SE	p
Occupational stress	Resilience training vs. Healthy lifestyle training	3.23	1.06	0.01
	Resilience training vs. Control	-1.03	1.06	0.01
Occupational self-efficacy	Resilience training vs. Healthy lifestyle training	-1.80	0.65	0.05
	Resilience training vs. Control	1.70	0.65	0.05

The Bonferroni post-hoc results presented in Table 3 showed statistically significant differences among the intervention groups. For occupational stress, the resilience training group differed significantly from the healthy lifestyle training group, with a mean difference of 3.23 ($SE = 1.06$, $p = 0.01$), and also differed significantly from the control group, with a mean difference of -1.03 ($SE = 1.06$, $p = 0.01$). Examination of the descriptive statistics showed that the healthy lifestyle training group experienced the greatest reduction in occupational stress, decreasing from a pretest mean of 35.93 to a posttest mean of 27.33, compared with a decrease from 36.86 to 32.86 in the resilience training group and from 36.13 to 35.66 in the control group. For occupational self-efficacy, the resilience training group differed from the healthy lifestyle training group, with a mean difference of -1.80 ($SE = 0.65$, $p = 0.05$), and from the control group, with a mean difference of 1.70 ($SE = 0.65$, $p = 0.05$). Consistent with these comparisons, occupational self-efficacy showed the largest increase in the healthy lifestyle training group, rising from 10.53 at pretest to 17.93 at posttest, compared with an increase from 10.80 to 14.07 in the resilience training group and virtually no change in the control group. Taken together, these findings indicate that both resilience training and healthy lifestyle training were effective in reducing occupational stress and increasing occupational self-efficacy, but healthy lifestyle training produced greater improvements in both outcomes.

Discussion and Conclusion

The present study compared the effectiveness of healthy lifestyle training and resilience training in reducing occupational stress and increasing occupational self-efficacy among employees of healthcare centers in Shabestar County. The findings showed that both interventions produced significant improvements in the study outcomes. Specifically, occupational stress decreased significantly from pretest to posttest in both intervention groups compared with the control group, and occupational self-efficacy increased significantly following both healthy lifestyle training and resilience training. In addition, the significant group-by-time interaction effects demonstrated that the pattern of change differed across the three groups. Most importantly, the post-hoc comparisons and descriptive findings indicated that healthy lifestyle training produced a greater reduction in occupational stress and a greater increase in occupational self-efficacy than resilience training. These findings suggest that although both interventions can be regarded as effective strategies for strengthening psychological functioning among healthcare employees, a comprehensive lifestyle-oriented intervention may exert broader effects on the psychological and behavioral mechanisms involved in occupational adjustment.

The finding that healthy lifestyle training significantly reduced occupational stress is consistent with previous evidence indicating that interventions targeting health behaviors and self-care can improve psychological functioning among employees and healthcare professionals. Stanulewicz and colleagues reported that lifestyle health-promotion interventions among nurses were associated with improvements in health-related outcomes and demonstrated the usefulness of structured lifestyle programs within nursing populations (9). Similarly, employee health and wellness coaching has been associated with favorable changes in self-reported stress as well as physical and mental health among hospital and university employees (11). The present finding also corresponds with evidence showing that healthy lifestyle education can promote resilience and occupationally relevant psychological outcomes among employees (14). Moreover, the increasing emphasis on lifestyle medicine education for healthcare professionals reflects recognition that health-related behaviors are important not only for patient care but also for the well-being and functioning of health professionals themselves (10).

The stress-reducing effect of healthy lifestyle training may be explained by the multidimensional nature of this intervention. Occupational stress is influenced not only by cognitive appraisal but also by physical fatigue, sleep disturbance, poor recovery, behavioral habits, social functioning, and perceived control over daily life. The healthy lifestyle intervention used in the present study addressed several of these domains by including education and practice related to balanced nutrition, physical activity, stress management, relaxation, sleep hygiene, social relationships, avoidance of risky behaviors, positive thinking, and self-efficacy enhancement. Consequently, participants were provided with several simultaneous pathways for coping with occupational pressure. When healthcare employees improve sleep, engage in regular physical activity, apply relaxation techniques, and organize their daily health behaviors more effectively, they may experience a greater sense of physiological recovery and personal control. This may reduce the extent to which workplace demands are perceived as overwhelming. The benefits of integrated and accessible interventions for stress reduction and burnout prevention among healthcare professionals have also been emphasized in previous research (5).

The present results are also understandable in light of the high occupational demands experienced by healthcare workers. Previous studies have documented substantial levels of job stress among healthcare personnel and have identified several occupational and psychosocial predictors of this stress (1, 2). Healthcare professionals are often exposed to time pressure, emotional demands, responsibility for patients, organizational limitations, and unpredictable work conditions. Under these circumstances, interventions that improve daily recovery behaviors may be especially important. Lifestyle modification may help employees manage the cumulative effects of occupational demands outside and inside the workplace by increasing opportunities for physical and psychological restoration. This interpretation is also compatible with findings among surgical residency trainees showing meaningful relationships among job stress, cognitive emotion-regulation strategies, and problematic patterns of work involvement (3). Thus, reducing occupational stress may require attention to both psychological coping and broader patterns of daily functioning.

Resilience training also significantly reduced occupational stress in the present study. This finding is consistent with previous studies supporting the effectiveness of resilience-oriented interventions among healthcare professionals. A mindfulness-based resilience program implemented with healthcare professionals demonstrated that resilience training can improve psychological functioning in individuals exposed to considerable emotional strain (15). Similarly, an intervention designed to prepare healthcare professionals and students for stressful healthcare events demonstrated the practical relevance of resilience-building strategies for managing difficult professional experiences (4). More recent evidence from mental health nursing has also supported the effectiveness of structured resilience-promoting interventions (16). These convergent findings suggest that resilience skills can be developed through training and can help healthcare employees respond more adaptively to unavoidable occupational challenges.

The effectiveness of resilience training in reducing stress can be explained through its emphasis on cognitive and emotional coping skills. In the present intervention, participants learned to identify links among stressful events, beliefs, and emotional reactions; modify catastrophic interpretations; develop more optimistic explanatory styles; solve problems systematically; improve assertiveness; use social support; and practice stress-reduction techniques. These skills may modify the appraisal process through which workplace demands become psychologically stressful. Rather than interpreting adverse events as uncontrollable or overwhelming, employees may learn to identify alternative explanations and develop actionable coping responses. Social support may further strengthen this process. Research among medical staff has demonstrated meaningful associations among social support, psychological resilience, and positive coping, indicating that resilience does not operate exclusively as an internal individual capacity but is also supported by interpersonal resources (19). The increasing feasibility of disseminating evidence-based resilience programs through workplace training systems further strengthens the practical relevance of this approach (20).

The second major finding was that both healthy lifestyle training and resilience training significantly increased occupational self-efficacy. This result is important because occupational self-efficacy represents employees' confidence in their capacity to manage professional responsibilities, cope with difficulties, and perform successfully under demanding conditions. Previous findings among nursing professionals have indicated that self-efficacy is associated with perceived stress and constitutes an important psychological

resource for functioning in challenging clinical environments (6). Research has also demonstrated that resilience and self-efficacy are associated with compassion fatigue among nurses, emphasizing the protective importance of these resources in emotionally demanding healthcare occupations (7). Accordingly, interventions that increase employees' perceived competence may have implications not only for individual confidence but also for their capacity to manage occupational strain.

The beneficial effect of healthy lifestyle training on occupational self-efficacy is consistent with research showing that lifestyle-change interventions can strengthen self-efficacy and related beliefs regarding personal agency. Lifestyle change training has been found to improve self-efficacy and outcome expectations while reducing external locus of control (12). Likewise, cognitive-behavioral training designed to promote a healthy lifestyle has demonstrated favorable effects on self-efficacy and psychological well-being (13). The present intervention required participants to establish achievable goals, monitor daily behavior, perform specific exercises, recognize successful behavioral changes, and develop longer-term lifestyle plans. Such experiences may provide concrete evidence that individuals are capable of modifying their own behavior. Repeated successful experiences can strengthen beliefs in personal competence and may subsequently generalize from health-related behavior to occupational functioning.

Healthy lifestyle training may also strengthen self-efficacy because it transforms abstract psychological principles into observable daily actions. For example, participants can directly observe whether they have completed planned physical activity, improved their sleep routine, used a relaxation strategy, made healthier dietary choices, or successfully maintained a behavioral goal. These observable achievements may strengthen perceived control and personal agency. Wellness coaching research showing improvements in stress and broader health outcomes among employees supports the usefulness of goal-directed health behavior change (11). Similarly, lifestyle medicine education emphasizes the active role of individuals in modifying behaviors that influence well-being (10). Thus, healthy lifestyle training may increase occupational self-efficacy indirectly by providing repeated mastery experiences and strengthening a generalized perception of personal effectiveness.

Resilience training also increased occupational self-efficacy, which may be explained by the development of coping competence. When individuals acquire practical strategies for problem-solving, challenging negative beliefs, regulating emotions, communicating assertively, and seeking support, they may become more confident in their capacity to deal with future workplace problems. Previous resilience interventions have demonstrated beneficial psychological effects in healthcare professionals (4, 15), and resilience training has also produced favorable outcomes in other populations, including reductions in burnout and improvements in adaptive psychological functioning (17, 18). These findings support the view that structured resilience education can strengthen individuals' perceived resources for coping with difficult situations.

An important result of the present study was that healthy lifestyle training was more effective than resilience training in reducing occupational stress. Although resilience training directly targets adaptive responses to stress, healthy lifestyle training may influence a wider set of antecedents and consequences of occupational strain. Healthcare employees may experience psychological stress in combination with physical fatigue, disrupted sleep, insufficient exercise, irregular eating patterns, reduced opportunities for recovery, and weakened social engagement. A lifestyle intervention addresses several of these factors simultaneously. In contrast, resilience programs tend to place greater emphasis on cognitive interpretation, emotional

regulation, and coping with adversity. These mechanisms are valuable, as supported by resilience intervention research (4, 16), but they may not fully address the behavioral and physical dimensions associated with chronic occupational stress. The broader biopsychosocial scope of healthy lifestyle training may therefore explain its stronger effect in the present study.

Healthy lifestyle training was likewise more effective than resilience training in increasing occupational self-efficacy. One explanation is that lifestyle training may generate more frequent and directly observable mastery experiences. Participants can experience successful completion of behavioral goals on a daily basis, such as exercising, improving sleep, practicing stress-management techniques, or following a planned health behavior. These accomplishments may provide continuous feedback that personal behavior can be intentionally regulated. Evidence that lifestyle-change training can strengthen self-efficacy supports this interpretation (12, 13). In contrast, improvements resulting from resilience training may become most apparent when participants subsequently encounter significant stressful situations and successfully apply the acquired cognitive and emotional skills. Consequently, the self-efficacy-enhancing effects of resilience training may develop more gradually or depend more strongly on opportunities for applying those skills.

Another possible explanation for the superiority of healthy lifestyle training is its integration of psychological, physical, behavioral, and interpersonal resources. Social support, for example, is relevant to resilience and positive coping among healthcare workers (19), but social connectedness can also be incorporated directly into lifestyle routines. Similarly, stress-management practices may be complemented by physical activity, sleep improvement, and health-oriented goal setting. The intervention therefore does not rely on a single coping mechanism. This multidimensionality may be particularly advantageous in healthcare workplaces, where occupational pressures are heterogeneous and frequently simultaneous. The findings are therefore consistent with the broader movement toward comprehensive workplace health interventions and scalable preventive programs designed to strengthen employees before severe stress or burnout occurs (5, 20).

Overall, the findings indicate that both resilience training and healthy lifestyle training can be useful interventions for improving occupational psychological functioning among healthcare employees. Resilience training appears to provide employees with important cognitive, emotional, interpersonal, and problem-solving resources for managing adversity, whereas healthy lifestyle training appears to extend these benefits by simultaneously targeting daily health behaviors and self-regulatory processes. The stronger effects observed for healthy lifestyle training suggest that occupational stress and occupational self-efficacy may be particularly responsive to interventions that combine psychological skills with concrete behavioral modifications. This does not diminish the value of resilience training; rather, it indicates that the scope of intervention may influence the magnitude of improvement. Given evidence that self-efficacy, resilience, coping, and stress are interconnected in healthcare personnel (6, 7, 19), comprehensive programs that strengthen several protective resources simultaneously may be particularly beneficial.

Several limitations should be considered when interpreting the findings. First, the study was conducted among employees of healthcare centers in Shabestar County, which limits the generalizability of the results to healthcare workers in other geographical, cultural, and organizational contexts. Second, the relatively small sample size may limit the precision of the estimated intervention effects. Third, participants were initially recruited through convenience sampling, which may have introduced selection bias despite

subsequent assignment to the study groups. Fourth, occupational stress and occupational self-efficacy were assessed using self-report questionnaires, and responses may therefore have been influenced by social desirability, response tendencies, or participants' subjective perceptions. Fifth, the study assessed changes from pretest to posttest without a long-term follow-up period; consequently, it remains unclear whether the observed benefits were sustained after completion of the interventions. Finally, complete blinding was not feasible because participants were aware of the intervention they received.

Future studies are recommended to replicate these findings using larger and more diverse samples drawn from hospitals, clinics, emergency departments, primary healthcare facilities, and other healthcare organizations in different regions. Multicenter studies could increase generalizability and permit examination of whether intervention effectiveness varies according to occupational role, gender, age, work experience, shift pattern, or organizational setting. Future research should also include follow-up assessments several months after intervention completion to determine the durability of improvements in occupational stress and self-efficacy. Randomized controlled trials with stronger allocation procedures would further enhance causal inference. Researchers may additionally examine potential mediating mechanisms, such as sleep quality, perceived social support, coping strategies, emotion regulation, health behaviors, and perceived control. Comparing combined healthy lifestyle and resilience programs with each intervention alone could also determine whether an integrated intervention produces additive or synergistic benefits.

From a practical perspective, healthcare administrators and occupational health professionals should consider incorporating structured healthy lifestyle and resilience education into employee mental-health and professional-development programs. Because healthy lifestyle training produced the stronger effects in the present study, programs addressing physical activity, sleep hygiene, balanced nutrition, stress-management techniques, positive social relationships, and achievable behavioral goal setting may be prioritized when organizational resources are limited. Resilience-oriented components such as cognitive reframing, problem-solving, assertiveness, realistic optimism, emotional regulation, and constructive use of social support can also be integrated into these programs. Training should be scheduled in ways that accommodate healthcare employees' workloads and shift patterns and should emphasize practical skills that can be incorporated into everyday routines. Managers may further support intervention effectiveness by creating organizational conditions that encourage healthy behaviors, psychological recovery, collegial support, and employees' confidence in their ability to manage occupational demands.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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