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Effect of mindfulness training program on well-being and leadership skills of psychiatric nurses

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ABSTRACT

Background: Nursing leaders need mindfulness, which is an effective intervention for reducing stress, promoting well-being, and enhancing their leadership skills.
Purpose: To explore the effect of a mindfulness training program on the well-being and leadership skills of head nurses.
Methods: A quasi-study design was used and conducted in a psychiatric and neurological university hospital on a convenience sample of 40 head nurses. Using the cognitive and affective mindfulness scale, the mindful attention awareness scale, the leadership skills questionnaire, and the mindfulness program.
Findings: The findings resulted in a significant difference in the effect of the mindfulness program before and after training when applied to leadership skills, especially conceptual and administrative skills.
Discussion: Managers must adopt a mindfulness program, integrate it into nursing intervention protocols, and circulate it to all nursing staff because it has a noticeable impact if it is practiced seriously and its results are benefited from.

Introduction

The current life events may be catastrophic because most of people tend to think about problems whether in the past, present or future based on past experiences, leading to stress and negative emotions. Paying less attention to the present may have negative effects on work-related tasks and work outcomes. Especially in the university hospitals where a positive organizational climate was absent (Hossny despite the highly creative nursing managers in this hospital (Hossny, Alotaibi, Mahmoud, et al., 2023; Hossny and Alotipi, 2024). Mindfulness training helps one to mobilize the inner resources to face problems openly, to be aware of and orient oneself to overcome the pressure, and to propel oneself through it (Klainin-Yobas et al., 2012).

Mindfulness is a state and process of being aware of the present moment to better understand oneself and others through gained awareness. Mindfulness-based intervention programs are becoming

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more popular in organizations, workplaces, and groups worldwide. It has been implemented in educational, non-governmental, private, and public organizations. Hospitals and healthcare systems in developed and developing countries have embraced mindfulness-based intervention programs. Mindfulness involves paying attention to one's thoughts, feelings, and emotions while maintaining a non-judgmental attitude. Mindfulness-based training programs have been utilized in clinical settings for healthcare professionals, including nurses (Sorour et al., 2023).

Mindfulness-based training programs can improve healthcare professionals' health and well-being includes mindfulness-based stress reduction, mindfulness-based cognitive therapy, and mindfulness-based awareness programs. Mindfulness-based stress reduction can significantly enhance staff wellness and interpersonal relationship skills while reducing burnout and resistance to organizational change. Evidence supports the effectiveness of mindfulness-based training programs for healthcare professionals. The growing interest in mindfulness-oriented interventions is partially due to their applicability in institutional settings. Mindfulness is compatible with autonomy and ownership, as plans emerge within existing constraints. Mindfulness training programs are suitable for the demands of institutional settings.

The concept of mindfulness emphasizes present-moment awareness, in which a person purposefully pays attention to the present-moment experience in a non-judgmental way (Kabat-Zinn, 2003). Several studies have shown that mindfulness-based interventions, both long (2.5 h/session) and short (last 4 to 30 min) can improve the mindfulness, resiliency, and wellbeing in healthcare professionals, including nurses and nursing students (Gilmartin et al., 2017; Li et al., 2020).

Regarding mindfulness-based training is an effective intervention for lowering perceived stress, and promoting well-being among nurses. Which can be learned and developed by practicing it daily for no <10 min (Reitz et al., 2020). By practicing mindfulness, nurses can improve their inner qualities, such as attention, compassion, and resee (Yagi et al., 2023). Mindfulness training has recently emerged as a novel method of developing leaders in popular management publications (Hougaard & Carter, 2018). A growing body of research on mindfulness in the field of leadership suggests that mindfulness is a highly beneficial factor for various leadership and organizational outcomes (Zhou et al., 2023).

In the same context wellbeing and understanding, preventing, and acting upon poorest wellbeing is vital. Burnout among psychiatric nurse's leader ship skills seem to elevate with worsening life distress and negative thoughts. The emotional challenge leads to a predisposing effect of psychiatric nurses attempting to evade distressing life events. So, mindfulness is significant, and ignoring it can lead to negative attributes, such as decreased ability to pay attention, cooperate with patients, and work under emotional distress. There is no publication of mindfulness training programs to develop nurse leadership characteristics in mental health settings to meet patients' needs of being calm and mindful (Reitz & Chaskalson, 2016).

According to Sampl et al. (2017) mindfulness-based self-leadership training was effective in improving self-leadership capabilities and was distinct but associated with active leadership styles. Improvements in self-leadership aspects are thus likely to be associated with improvements in leadership style and vice versa.

Psychological well-being encompasses life satisfaction, self-acceptance, personal growth, purpose in life, positive relations with others, and environmental mastery. Consequently, it is important to consider well-being as an independent central variable when determining the impact of mindfulness training. To support better well-being, proactive cognition could be more beneficial than a passive notice of what is going on. Mindfulness training programs that focus on interoceptive awareness through body scan practices could also improve well-being (Kriakous et al., 2021).

Also, there is a scarcity of research investigating how mindfulness training may affect leader capabilities. Little research has been conducted on how mindfulness is applied to management and human resource management practices. According to the findings, employees' perceptions of a leader's ability to be mindful can have a positive impact on the meaning of their work. It is a mental state in which the leader is acutely aware of his surroundings and deeply concerned about them (Faizul, 2023).

Regarding the nurse leaders should practice "leading with emotional labor" and learn how to regulate their own feelings effectively. Also, leaders need capabilities to effectively lead themselves through mindfulness-focused strategies such as goal setting and self-observation and constructive thought patterns such as evaluating beliefs and assumptions. Therefore, mindfulness training is potentially useful in promoting well-being and leadership skills for those leaders. To gain a better understanding of the potential of a new research field, we sought to understand how senior leaders experience the impact of mindfulness training on their work lives and leadership abilities (Malinowski & Lim, 2015). Thus, the aim of this study is to explore the effect of a mindfulness training program on the well-being and leadership skills of head nurses.

Aims of the study

To explore the effect of mindfulness training program on will being and leadership skills of nurses.

Research hypothesis

H0. : Mindfulness training program not affect will being and leadership skills of psychiatric nursing leaders.

H1. : Mindfulness training program will improve will-being and leadership skills of psychiatric nursing leaders.

Methods

Research design

A Quasi experimental research pre-post study design was used.

Setting

The study was carried out at inpatient units in psychiatric mental health hospital at Assiut University. Total staff nurses in this hospital were 294 (254 nurses and 40 head nurses).

Sample

A convenience sample of (40) head nurses who working in inpatient units and agreed to participate in the study at time of data collection as inclusion criteria. While, exclusion criteria include nurses who work in the outpatient clinic due to the different types of patient care, roles and responsibilities and nurses who have a history of mental illness.

Tools of the study

I: Personal characteristics data: It includes the nurse's age, sex, residence, level of education, marital status, years of experience.
II: The Cognitive and Affective Mindfulness Scale – Revised (CAMS-R)

This Scale was developed by Feldman et al. (2007) to assess mindfulness and emotion regulation consisted of 10 items. For instance: It is easy for me to concentrate on what I am doing; I can tolerate emotional pain; I can accept things I cannot change.

Scoring: Note that 6 is reversed scored. The scale was measured on four-point scale (rarely/not at all = 1; sometimes = 2; often = 3; almost always = 4). Sum of all values reflects greater mindful qualities.

III: Mindful Attention Awareness Scale

Mindful Attention Awareness Scale (MAAS) developed by Brown and Ryan (2003) to assess individual differences in the frequency of mindfulness states over time and to assess a core characteristic of dispositional mindfulness, namely, open or receptive awareness of and attention to what is taking place in the present. Correlational, quasi-experimental, and laboratory studies have shown that the MAAS taps a unique quality of consciousness that is related to, and predictive of, a variety of self-regulation and well-being constructs. The scale consisted of a 15-items, for instance: I could be experiencing some emotion and not be conscious of it until sometime later; I find it difficult to stay focused on what's happening in the present; I forget a person's name almost as soon as I've been told it for the first time. It measured on 6-point scale (Almost always = 1; Very frequently = 2; Somewhat frequently = 3; Somewhat infrequently = 4; Very infrequently = 5; Almost

never = 6). To score the scale, simply compute a mean of the 15 items. Higher scores reflect higher levels of dispositional mindfulness.

IV: Leadership skills questionnaire

The leadership skills questionnaire developed by Peter and Northouse (2011). It composed of 18- item. It is designed to measure three broad types of leadership skills: administrative skills, for instance: I am effective with the detailed aspects of my work; Filling out forms and working with details comes easily for me. Interpersonal skills, for instance: I usually know ahead of time how people will respond to a new idea or proposal; Understanding the social fabric of the organization is important to me. Conceptual skills, for instance: I am effective at problem solving; When problems arise, I immediately address them. It measured on five-point Likert scale ranging from Not true =1 to Very true = 5. By comparing the differences between scores, determine where leadership have strengths and weaknesses. Score of 26–30, means very high range; score of 21–25, means high range; score of 16–20, means moderate range; score of 11–15, means low range; score of 6–10, means very low range.

Validity and reliability

To evaluate the tool's understandability, clarity, and applicability; highlight potential issues that could arise during data collection; and estimate the time taken for the study, a pilot study was conducted. The pilot study was applied to 10 % of the total nurses (n = 4). Data was analyzed and no adjustments were made to the study tools. The study tools' reliability was evaluated using a Cronbach's alpha-coefficient test, which resulted in scores of 0.903 on the management creativity scale and 0.724 on the general decision-making style scale. Thus, it was evident that the study tools are highly reliable.

Field of work

1. Assessment phase:

Researchers assessed head nurses on personal characteristics, the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R), and the Mindful Attention Awareness Scale (tools I, II, and III, respectively). Also, tool IV (leadership skills questionnaire) used to measure the three types of leadership skills.

Data was promoted among nurses as a program to enhance well-being with the educational name, Mindfulness Program as part of the hospital's continuing nursing education program held in the seminar rooms of hospitals, which was introduced during the program to enhance ability on presence, calmness, and gratitude – all positive mental states associated with mindfulness.

2. Planning phase.

The mindfulness program schedule was prepared for four weeks, with a total of 12 sessions. The mindfulness program sessions are divided into six parts: Part 1 – preparation: Introduction to mindfulness, mental muscle relaxation and 5-min-deep breathing: Part 2 - The Raisin Exercise: Mental visualization and 5-min mindfulness walk; part 3 - The mindfulness training: Part 4: The Body Scan: Body Scan and Mind Scan - awareness of thinking errors for 5–10 min. The space and educational facilities were also examined to ensure their suitability. Part 5: Mindful Seeing. And lastly Part 6: Mindful Listening. As well as preparing the methods of teaching that will be used in each session includes demonstration, pamphlets and role play and media like video, and posters.

3. Implementation phase (The mindfulness training).

Head nurses were divided into four groups individually involved ten head nurses. The sessions started in the morning shift after they had finished their necessary work. The researchers utilized lectures, group discussions, and real work situations. The total program time was four weeks, three hours per each week (about one hour for each session) for each group. Each session of mindfulness training for psychiatric nursing consisted of six parts and conducted by the researcher. As part of the training, each psychiatric nurse was also given a booklet to guide them through the training sessions. The sessions begin with:

Part one: Introduction to mindfulness, mental muscle relaxation and 5-min-deep breathing. It is performed in seated positions, the psychiatric nurse leaders were instructed in diaphragmatic breathing, deep and conscious breathing.

Part Two: Mindfulness Steps: Relaxed deep breathing, aware of sounds around coming and going and keep taking and releasing slow. Close your eyes and drop all concerns now, like setting down a heavy bag. Now focus on breath Start counting your breaths softly Get more and more absorbed in your breathing. Start to notice the volume, speed, warmth and sound of the breath traveling in and out of your nostrils. Now, bring your attention to the presence of the thoughts that are moving through your mind, trying to pull your attention away from your breath. Take notice of them. Feel a growing sense of peacefulness within as you keep settling into the breath with more focus.

Part 3: The Raisin Exercise: Mental visualization and 5-min mindfulness walk: it includes mental imagery, minimal full walking while walking and climbing stairs, psychiatric nurses can walk almost without any special skills. Focusing on the single object of the raisin is meant to bring the participant's mind to the present, to what is right in front of them. "By focusing on the raisin in their hand and making a point to notice everything about it, they are unlikely to be expending energy, time and attention on worrying or ruminating about other parts of their lives." It is nearly impossible to avoid practicing mindfulness when you follow these instructions and take notice of what is in front of the present moment.

Part 4: The Body Scan: It includes body scanning and mind scanning - awareness of thinking errors, included 30-min guided narrative by expert and founder of mindfulness-based stress reduction (see supplementary section).

Part 5: Mindful Seeing: The activity of mindful seeing may be drug addict people. This is a simple exercise, requiring only a window with some kind of a view. With guidance from the researcher for the group (see supplementary section).

Part 6: Mindful Listening: Mindful listening is an important skill and can be a great group mindfulness exercise. In drug addict people thrive when they feel fully "heard" and "seen." In other words, mindful listening involves a form of self-regulation in which the focus on the self is set aside. Mindful listening can create an inner stillness in both parties as the speaker may feel free of the listener's preconceptions and the listener is free of inner chatter whilst learning valuable positive communication skills.

The Mindful Listening exercise involves these steps: First one, invites each participant to think of one thing they are stressed about and one thing they look forward to. Second, once everyone is finished each participant takes their turn in sharing their story with the group. Third, encourage each participant to direct attention to how it feels to speak, how it feels to talk about something stressful as well as how it feels to share something positive. Fourth, participants are instructed to observe

their own thoughts, feelings and body sensations both when talking and listening. Fifth, after each participant has shared, you can break into small groups and answer the questions stated bellow. Next, you regroup into the whole group and have a discussion and debrief with these questions. How did you feel when speaking and listening during the exercise? Did you notice any mind-wandering? If so, what was the distraction? What helped you to bring your attention back to the present? Did your mind judge while listening to others? If so, how did "judging" feel in the body? Were there times where you felt empathy? If so, how did this feel in the body? How did your body feel right before speaking? How did your body feel right after speaking? What are you feeling right now? What would happen if you practiced mindful listening with each person that you spoke with? Do you think mindful listening would change the way you interact and relate with others? How would it feel if you set the intention to pay attention with curiosity, kindness, and acceptance to everything you said and everything you listened to?

In addition to the group activities mentioned, you may also be interested in trying gentle yoga, both of which involve deliberate posture, purposeful breath, and an emphasis on awareness. Both of these activities have provided evidence for the benefits of mindfulness (Larrison, 2018).

4. Evaluation phases:

Evaluation phases of the impact of mindfulness program for studied nurses used after the program by using personal characteristics tool and the cognitive and affective mindfulness scale – revised (CAMS-R) and mindful attention awareness scale were assessed three times with the first, second and third tools before the educational intervention and immediately and 3 months after the educational intervention. While 40 nurses were evaluated twice using the fourth tool (leadership skills), before and three months after the intervention.

Statistical method

The data were tabulated and statistical analysis was performed with statistical package for social science (SPSS) version (20). Comparison between studied groups was performed with frequency, chi-square, independent & paired *t*-test and ANOVA test. Linear regression used to measure the effect of variables. The significance of difference calculates as 0.5

Ethical consideration

Official permission was obtained from the Dean of the Faculty of Nursing, Assiut University, addressed to the directors of the Psychiatric and Neurological Hospital. The Ethics Committee of the Faculty of Nursing - Assiut University approved the conduct of this study (No. = 3-2-2023 (1120240768)). Oral consent was obtained from each nurse who participated in the study. The goal was explained in a simple way to each participant. They were informed that no harmful maneuver was involved, no risks were anticipated, and confidentiality was maintained during all steps of the study. They were informed of their rights to refuse or withdraw from the study at any time. Finally, an informed consent was signed by all participants.

Findings

Table 1 illustrates that two fifths (40 %) of studied nurses are aging <25 years. All of the participants are female, and more than two fifths (45 % & 42.5 %) of the studied nurses have experience in the psychiatric department and in total nursing <5 years, respectively. (50 %) of them are married, and the majority (90 %) graduated from a bachelor's degree in nursing.

Table 2 illustrates that, there were a highly statistically significant differences (P. value <0.001**) between overall cognitive and affective mindfulness, overall mindful attention awareness and overall leadership skills before and after education. Also, for them, the highest max score (40, 90, 90), range (79, 69.5, 89.4) and mean score (31.6 ± 3.54, 62.63 ± 14.23, 80.48 ± 5.7) respectively.

Table 3 Showed that, there were a moderate positive correlation between cognitive and affective mindfulness and mindful attention awareness after educational program comparing to before. Also, a mild positive correlation between cognitive and affective mindfulness and leadership skills after educational program comparing to before. Moreover, a strong positive correlation was observed between mindful attention awareness and leadership skills after educational program comparing to before.

As shown in Table 4, the model was positive and that mindfulness had a positive effect on leadership skills, with highly statistically significant differences between them. It is also clear from the model that mindfulness has a greater impact on the conceptual skills of leadership, followed by administrative skills, then interpersonal skills.

Fig. 1 shows that head nurses reported that their level of leadership skills was higher after training compared to before training. It was also noted that the level of their personal skills was the highest, followed by conceptual skills, then administrative skills.

Fig. 2 showed that, there were a moderate positive correlation between cognitive and affective mindfulness and mindful attention awareness after educational program comparing to before. Also, a mild positive correlation between cognitive and affective mindfulness and leadership skills after educational program comparing to before. Moreover, a strong positive correlation was observed between mindful attention awareness and leadership skills after educational program comparing to before.

Table 1
Distribution of personal characteristics for study sample ($n = 40$).

Personal characteristics data	No	%
Age group		
<25 years	16	40.0
From 25 to 35 year	14	35.0
>35 years	10	25.0
Mean ± SD (range)	29.55 ± 9.09(19–52)	
Gender		
Male	0	0.0
Female	40	100.0
Years of experience in the psychiatric nursing department		
<5 years	18	45.0
From 5 to 10 year	9	22.5
>10 years	13	32.5
Mean ± SD (range)	9.15 ± 7.38 (1–30)	
Years of nursing experience		
<5 years	17	**42.5**
From 5 to 10 year	8	20.0
>10 years	15	37.5
Mean ± SD (range)	9.65 ± 7.61 (1–30)	
Income		
From 500 to 1000	16	40.0
From 1000 to 3000	18	45.0
>3000	6	15.0
Marital Status		
Single	18	45.0
Married	20	50.0
Divorced	1	2.5
Widow	1	2.5
Interest		
Moderate	12	30.0
High	28	70.0
Education		
Bachelor Nursing	36	90.0
Nursing Technical Institute	4	10.0

Independent T-test quantitative data between the two groups. *Significant level at *P* value <0.05. **Significant level at *P* value <0.01.

Table 2
Comparison between before and after educational program related to study variables ($n = 40$).

Variables	Max score	Before		After		P. value
		Mean ± SD	Mean%	Mean ± SD	Mean%	
Overall cognitive and affective mindfulness	40	24.25 ± 3.56	60.63	31.6 ± 3.54	79.00	<0.001**
Overall mindful attention awareness scale	90	41.1 ± 11.16	45.67	62.6 ± 14.2	69.58	<0.001**
Administrative skill	30	19.78 ± 3.59	65.92	26.3 ± 2.24	87.67	<0.001**
Interpersonal skill	30	21.03 ± 3.98	70.08	27.75 ± 1.79	92.50	<0.001**
Conceptual skill	30	18.88 ± 3.79	62.92	26.43 ± 3.05	88.08	<0.001**
Overall leadership skills	90	59.68 ± 8.28	66.31	80.48 ± 5.7	89.42	<0.001**

Independent T-test quantitative data between the two groups.
** Significant level at P value <0.01.

Table 3
Correlation co-efficient before and after training related to total cognitive and affective mindfulness scale, mindful attention awareness scale and leadership skills ($n = 40$).

Correlation	Before					After				
	CAMS	MAAS	AS	IS	CS	CAMS	MAAS	AS	IS	CS
MAAS	0.01	1				0.51**	1			
AS	−0.12	0.03	1			0.37*	0.70**	1		
IS	−0.09	0.16	0.18	1		0.19	0.63**	0.65**	1	
CS	−0.13	0.10	0.40**	0.31	1	0.31*	0.53**	0.45**	0.32*	1
Overall LSs	−0.15	0.13	0.70**	0.70**	0.78**	0.37*	0.76**	0.84**	0.74**	0.81**

Note: *CAMS, cognitive and affective mindfulness scale; MAAS, mindful attention awareness scale; LS, leadership skills; AS, administrative skills; IS, interpersonal skills; CS, conceptual skills.*
* Statistically Significant correlation at *P.* value < 0.05.
** Statistically Significant correlation at *P.* value < 0.01.

Table 4
Linear regression model of the effect of mindful attention awareness scale and cognitive and affective mindfulness on leadership skills.

Predictors	B	β	t	*p* value	95.0 % CI for B	
					Lower bound	Upper bound
Administrative skill	0.223	0.567	6.074	0.000**	0.056	0.603
Interpersonal skill	0.442	0.536	5.608	0.000**	0.039	0.846
Conceptual skill	0.251	0.569	6.108	0.000**	0.179	0.680
F.	18.77					
p value	0.000**					
R-squared	0.384					

Note: Independent variable is The Cognitive and Affective Mindfulness Scale; B, unstandardized beta; β, standardized beta; t, test statistic; *p*, probability value; *, statistically significant at $p < 0.05$; **, statistically significant at $p \leq 0.01$; CI, confidence interval; R-Squared, coefficient of determination; F, f statistics.

Discussion

Learning to manage administrative and clinical work needs striving through the development of mindfulness awareness of the present moment as taught in mindfulness meditation programs, such as mindfulness-based stress reduction (Penque, 2019). So, the aim of this study was to explore the effect of a training program for mindfulness on the well-being of nursing leaders and their leadership skills.

In general, there are highly statistically significant differences between the mean scores after the training program compared to before the program regarding the mindfulness and effectiveness scale, the attention and mindfulness scale, and the overall leadership skills. Leadership skills were very high after the mindfulness training program compared to before the training program, respectively, regarding interpersonal skills, conceptual skills, and administrative skills.

In detail, there are highly statistically significant differences between the mean scores after the training program compared to before the program regarding the mindfulness and effectiveness scale, with an increase in the score by 19. There are also highly statistically significant differences between the mean scores after the training program compared to before the program regarding the mindful attention and awareness scale, with an increase in the score by 24. From the researchers' point of view, participants, after applying education, become aware of their daily lives. This is consistent with Gregorio and Gouveia (2013), who stated that mindfulness and awareness measure the extent to which an individual acts consciously in daily life. Also, this is consistent with Amutio et al. (2015), who mention that mindfulness training has been associated with statistically significant increased relaxed states and decreased heart rate. Stress reduction and increased relaxed states may improve nurses 'decision-making through enhanced situational awareness and improve self-compassion in healthcare professionals. Also, mindfulness help nurses relax and overcome their fears, such as nurses' fear of receiving a breast cancer diagnosis (Ahmed et al., 2024). This is also consistent with Lan et al. (2014), who conducted the study on pre- and post-intervention scores of stress level. It showed a significant decrease in participants' stress level with a mean difference after attending mindfulness-based cognitive therapy. The participants' mindfulness level had increased significantly with a mean score, and the subjective happiness level improved with mean scores after attending the mindfulness-based cognitive therapy program.

Also, there are highly statistically significant differences between the mean scores after the training program compared to before the program regarding the overall leadership skills, with an increase in the score by 23. This is consistent with Zhou et al. (2023), who found a significant difference between leader mindfulness levels before and after the intervention. Also, Steinberg et al. (2017) found a workplace mindfulness intervention was well received and that nurses who participated in the intervention had increased work satisfaction and work engagement scores.

The results of the current study showed a strong positive correlation between the attention awareness scale and leadership skills in general, and the highest of them was associated with administrative skills. There was also a weak positive correlation between the cognitive and emotional alertness scale and leadership skills in general, and the

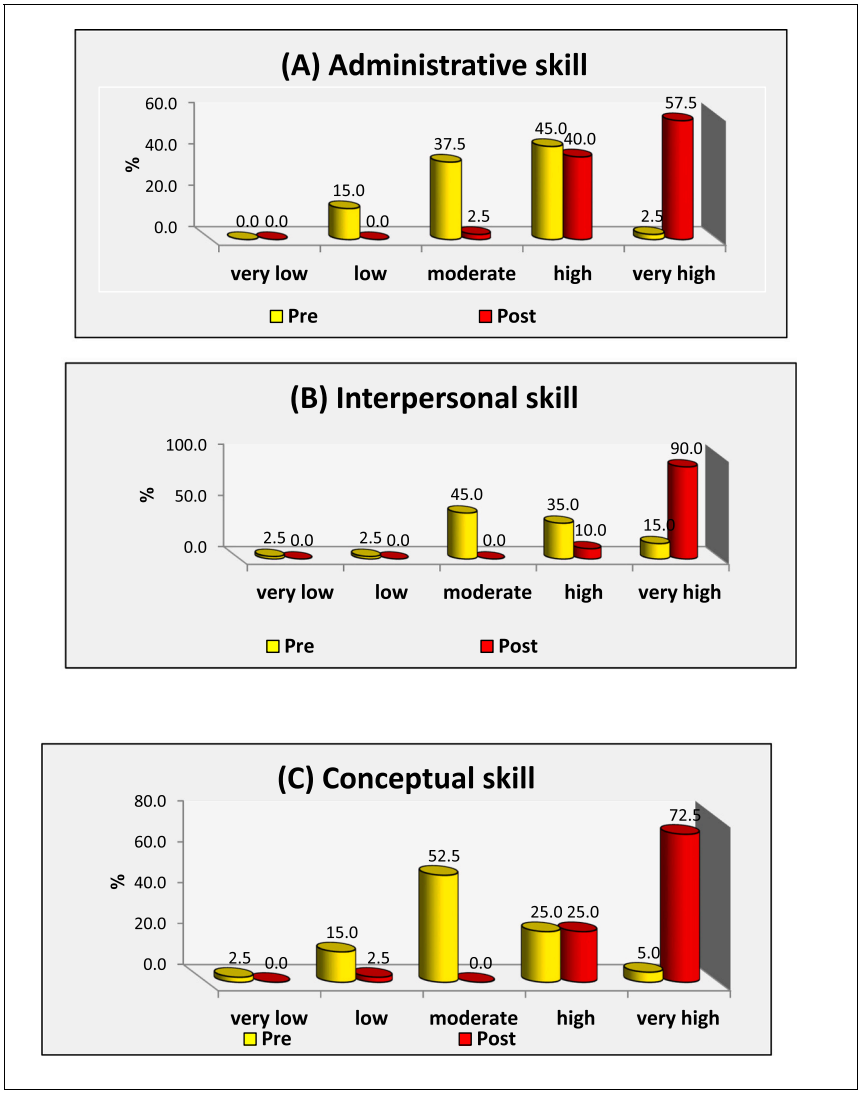

Fig. 1. levels before and after educational program of three leadership skills ($n = 40$).

highest of them was associated with administrative skills as well. The finding of the present study was consistent with Wasylkiw et al. (2015), who conducted their study about "The impact of mindfulness on leadership effectiveness in a health care setting: a pilot study" and demonstrated that there was a positive relation between mindfulness and leadership effectiveness. In the same context as Cate et al. (2014), who stated that there were positive and significant relationships between the studied sample mindfulness and leadership effectiveness. Moreover, Reb et al. (2014) state that supervisors who completed mindfulness training would demonstrate increased awareness and attention, and these traits would thereby affect employee well-being and job satisfaction.

Moreover, there was a very high level of personal, conceptual, and managerial leadership skills, respectively, after training compared to before training. From the researchers' point of view, managerial skills and personal skills are complementary to each other, which include multifaceted responsibilities that require mindfulness, allowing for self-awareness, reflection, and deliberate growth of leadership capabilities. According to Arendt et al. (2019), who reported that there were positive and significant relationships between the studied sample mindfulness, leadership effectiveness, and communication skills. These results suggest that mindfulness bolsters self-connection, which in turn increases well-being (Klussman et al., 2020).

This is consistent with Ceravolo and Raines (2019), who mention that mindfulness-based interventions may be effective in improving the well-being of individuals and in improving performance at work. Results of a meta-analysis for leaders indicate the effectiveness of mindfulness interventions in improving leader well-being. The leader's alertness is closely related to his well-being, relationships, and job performance (Zhou et al., 2023).

According to the results of the current study, regression analysis also showed that the highest effect of the mindfulness training program was first on the conceptual skills of leadership, then the administrative skills of leadership, and finally on the personal skills of leadership. From the researchers' point of view, when a head nurse is alert and aware of her work, she can learn and positively influence all members around her, allowing the big goal to be reached. This is consistent with Mostafa and Mahfouz (2021), who stated that head nurses have great mental awareness, which makes them more positive and optimistic, makes the right decision, has a fully present mind, and helps in enjoying life on both sides, personal and professional life, enhancing communication skills with others, and success in reaching organizational goals.

Limitation of the study

There are some limitations for this study, first this study conducted on head nurses only in psychiatric and mental hospital. Second

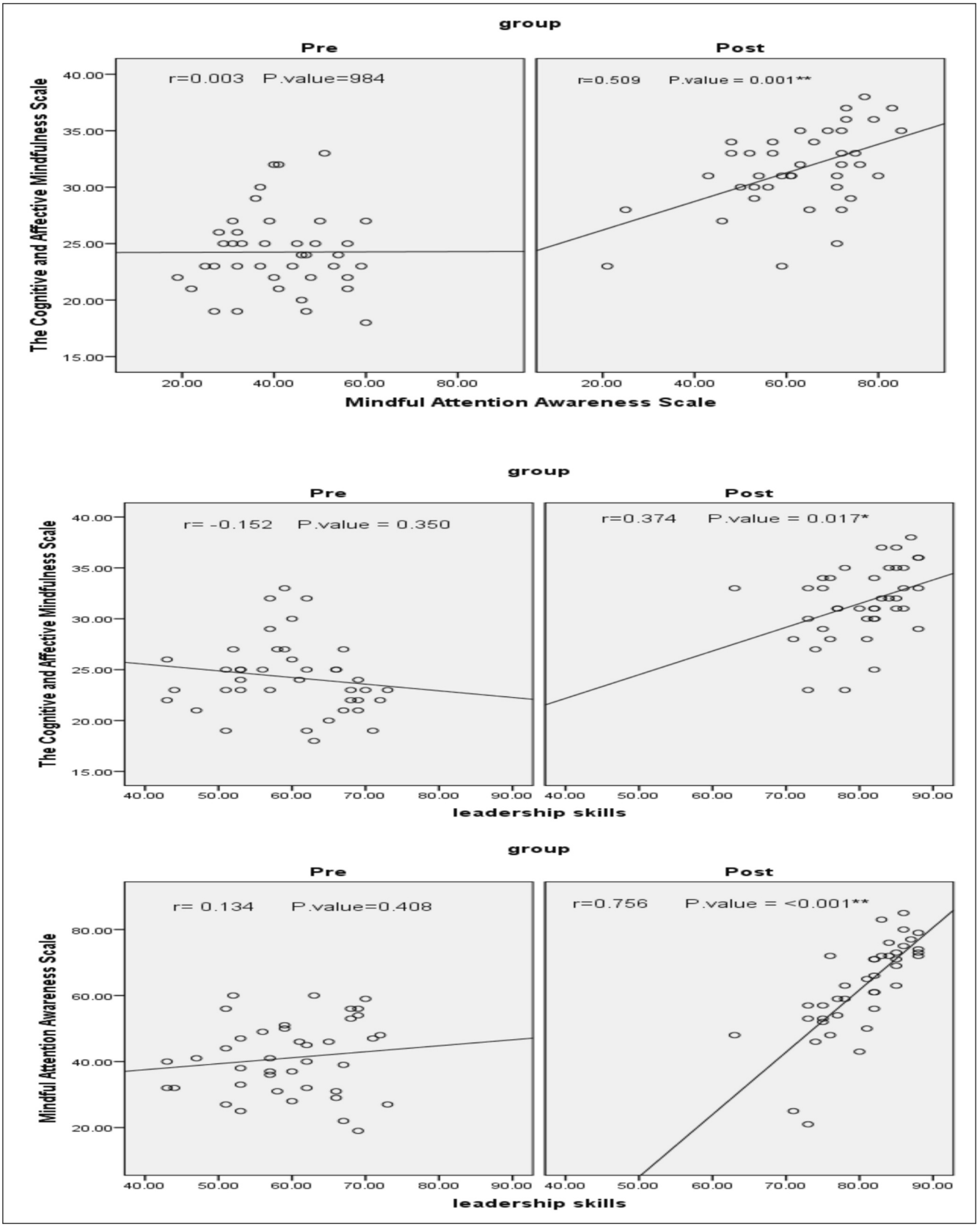

Fig. 2. correlation co-efficient before and after training related to total cognitive and affective mindfulness scale, mindful attention awareness scale and leadership skills (n = 40).

limitation was related to gender, which all sample are female and no male and the cause back to no male in nursing has a position of head nurse until now.

Conclusions and recommendations

This research study examines the effect of mindfulness training on well-being and leadership skills. There are highly statistically significant differences between the mean scores after the training program compared to before the program regarding the mindfulness and effectiveness scale, the attention and mindfulness scale, and the overall leadership skills. Leadership skills were very high after the mindfulness training program compared to before the training program, respectively, regarding interpersonal skills, conceptual skills, and administrative skills.

Also, leadership skills were very high after the mindfulness training program compared to before the training program, respectively, regarding interpersonal skills, conceptual skills, and administrative skills. There is a high statistically significant correlation between overall leadership skills and the mindfulness attention awareness scale, and there is a weak statistically significant correlation between leadership skills and the cognitive and affective mindfulness scale.

Moreover, regression analysis showed that the highest effect of the mindfulness training program was first on the conceptual scale of leadership, then the managerial skills of leadership, and finally on the personal skills of leadership.

Thus, the researchers recommend applying this program to staff nurses in psychiatric health settings as well as in other health care settings. A study on patients and nurses' satisfaction or patient outcomes should be carried out to further support the evidence for the effectiveness of the mindfulness-based cognitive therapy (MBCT) program on nurses. MBCT should be promoted and internalized as part of the hospital's strategy to reduce stress and manage well-being among nursing staff, and it should also be integrated into the nursing curriculum. Therefore, there is a need to develop a culturally acceptable psychological health program to help nursing leaders in general and psychiatric nurses' leaders in particular cope with excessive stress. Last but not least, it is preferable to apply the program to all staff nurses in different hospital specializes to gain its benefit and for generalization.

CRediT authorship contribution statement

Eman Kamel Hossny: Writing – review & editing, Supervision, Conceptualization. **Ola Ali Abed El-fatah:** Writing – review & editing, Supervision, Conceptualization. **Heba Mostafa Ali:** Investigation, Data curation. **Faten Shawky Kandil:** Investigation, Formal analysis. **Sahar Elsayed Gaber Behilak:** Validation, Methodology, Investigation, Formal analysis. **Ishraga Abdelgadir Ibrahim Mohamed:** Methodology, Data curation. **Fatma Ahmed Elsobky:** Writing – original draft, Software, Investigation. **Intisar Alshiekh:** Writing – original draft, Software, Investigation. **Hanaa M. Abo Shereda:** Writing – original draft, Software, Formal analysis. **Rania Maher Alhalawany:** Conceptualization, Formal analysis, Investigation, Writing – review & editing. **Reda Hassan Hussien:** Conceptualization, Data curation, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors attest that every procedure was carried out in compliance with all applicable rules and regulations.

Accessibility of information and resources

This article contains all of the data that were created or examined during the investigation.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.apnu.2024.10.002.

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