

Developing and Implementing an Educational Program about Toxic Management for Nurse Managers

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ABSTRACT

Background: Toxic management is a management style characterized by behaviors and practices that are harmful to employees' well-being and organizational performance. **Objective:** To develop and implement an educational program about toxic management for nurse managers at Main Assuit University Hospital. **Methods:** The study included all nurse managers (N = 70) working at Main Assuit University Hospital using a total population sampling technique. A one-group quasi-experimental design was used. Knowledge regarding toxic management was assessed before the program, immediately after its completion, and three months later. Data were collected using a structured self-administered questionnaire consisting of three parts: demographic characteristics, a toxic management knowledge scale, and a participant's feedback form. **Results:** The findings revealed that 61.4% of nurse managers had unsatisfactory knowledge scores regarding toxic management during the pre-test phase, while 92.9% and 90.0% had satisfactory scores during the post-test and follow-up phases, respectively. Highly statistically significant differences were observed between the pre-test and post-test phases, as well as between the pre-test and follow-up phases ($p < 0.001$). **Conclusion:** Nurse managers showed improved knowledge regarding toxic management across the post-test and follow-up assessments, particularly in relation to assessment of toxic management at work and strategies for preventing and managing toxic behaviors. Furthermore, participants reported favorable evaluations. **Recommendations:** Healthcare organizations should integrate toxic management education into on-going professional development and training programs. Further research is recommended to examine the effectiveness and applicability of the program across different cultural and organizational contexts.

Keywords: Educational Program; Nurse Managers; Toxic Management

INTRODUCTION

Nursing management and leadership play a vital role in shaping the quality of patient care and supporting effective healthcare delivery. Nurse managers are required to possess a broad range of competencies that influence nursing teams and the overall functioning of healthcare organizations (Al-Nasri, 2024). Inadequate managerial practices may contribute to toxic management behaviors, which can adversely affect employees and organizational performance (Saban, 2024).

Toxic management is characterized by harmful leadership behaviors that may include abusive supervision, self-promotion, narcissism, and authoritarian or controlling behaviors, which can negatively affect employees and the work environment (Abdelrahman *et al.*, 2025). Within nursing environments, toxic management may manifest through behaviors such as narcissism, self-promotion, and abusive supervision. Such behaviors can negatively affect nurses and the work environment (Yan *et al.*, 2026). Toxic management behaviors among nurse managers may contribute to dysfunctional workplace relationships and unfavorable organizational climates (Reslan *et al.*, 2025).

Toxic management may also affect nurses' coping and psychological well-being (Mokhtar Taha, 2024). Toxic leadership among nurse managers has also been associated with nurses' whistleblowing intentions, highlighting the importance of a work environment that supports safe reporting (Abdelrahman *et al.*, 2025).

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Therefore, targeted education on toxic management may help strengthen nurse managers' management and leadership competencies (Al-Nasri, 2024). Educational and leadership development can improve leadership competencies and support healthier work environments (Shurab *et al.*, 2024). Training programs specifically addressing toxic management may also help reduce counterproductive workplace behaviors (Othman *et al.*, 2024).

Although international studies have examined toxic management and its consequences, including burnout, turnover intention, and reduced productivity (Gargan, 2019; Koropets *et al.*, 2020), structured educational programs targeting nurse managers' knowledge about toxic management remain limited. Moreover, differences in organizational culture and cultural context may influence how healthcare professionals perceive and respond to educational and organizational interventions, highlighting the importance of evaluating such interventions within the local Egyptian context (Rafi'i *et al.*, 2025). Therefore, the current study addresses this gap by implementing and evaluating a structured educational intervention designed specifically to improve nurse managers' knowledge regarding toxic management and its prevention.

METHODOLOGY

A one-group quasi-experimental design was used to evaluate the educational program. Although this design allows assessment of changes over time, the absence of a control group may limit internal validity (Capili & Anastasi, 2024). The study included all nurse managers (N = 70) working at Main Assuit University Hospital using the total population sampling technique; therefore, a priori sample size calculation was not performed. The inclusion criteria for participant selection involved all nurse managers currently working at Main Assuit University Hospital. The exclusion criteria involved nurse managers on extended leave during the study period.

Data Collection Tool

Data were collected using a structured self-administered questionnaire developed by the researcher based on relevant literature (Saban, 2024). The questionnaire consisted of three parts and was administered to the participants before the program, immediately after its implementation, and three months later for follow-up assessment.

Part I: Demographic Characteristics Form

This part included data about nurse managers such as name, unit name, age, gender, marital status, educational qualification, and years of experience. To protect confidentiality, no participant names were recorded on the questionnaire; instead, each participant was assigned a unique, non-identifying study code that was used to match responses across the three assessment phases.

Part II: Toxic Management Knowledge Scale

It was used to assess nurse managers' knowledge regarding toxic management. It consists of 63 items, classified into nine dimensions, namely: definition of toxic management includes (2 items), characteristics of toxic management include (5 items), causes of toxic management include (8 items), impact of toxic management include (5 items), definition of toxic manager include (1 item), traits of toxic manager include (11 items), types of toxic managers include (9 items), steps to effectively assess toxic management include (7 items), strategies to overcome toxic management include (15 items).

Example Items

Micromanagement is a characteristic of toxic management.

Causes of toxic management may include high work pressure.

Scoring System

Each of the 63 knowledge items was answered with “Yes” or “No.” A correct response was given 1 point, while an incorrect response was given 0 point. The scores were summed to obtain a total knowledge score

ranging from 0 to 63, with higher scores indicating better knowledge.

A 60% cut-off was prespecified as the criterion for satisfactory knowledge, consistent with its use in nursing knowledge assessments (Ghonem & El-Husany, 2023). Scores of ≥ 38 points (60%) were classified as satisfactory, whereas scores < 38 points were classified as unsatisfactory.

Part III: Participant's Feedback Form

It was used to evaluate the worth of the program from the participants' perspective. The feedback form contained 16 items covering program content (10 items) and program appropriateness (6 items), rated on a five-point Likert scale ranging from poor (1) to excellent (5).

Administrative Design

Official approval to carry out this study was obtained from the Dean of the Faculty of Nursing at Assuit University, the director of Main Assuit University Hospital, the nursing director, and the nurse managers working at Main Assuit University Hospital.

Validity and Reliability

Face and content validity were assessed by a panel of five experts from nursing administration and community health nursing departments. The experts reviewed the items for clarity, relevance, and appropriateness to the study objectives, and necessary modifications were made based on their feedback. The validation process was conducted from October to December 2024.

Table 1: The Internal Consistency of the Study Tool Subscale

Subscales	Cronbach's alpha
Definition of Toxic Management	0.84
Characteristics of Toxic Management	0.81
Causes of Toxic Management	0.83
Impact of Toxic Management	0.79
Definition of Toxic Manager	N/A
Traits of Toxic Manager	0.88
Types of A Toxic Managers	0.80
Steps to Effectively Assess Toxic Management	0.82
Strategies to Overcome Toxic Management	0.85

Table 1 shows that reliability testing using Cronbach's alpha demonstrated excellent internal consistency for the overall scale ($\alpha = 0.91$). The internal consistency of the multi-item subscales ranged from 0.79 to 0.88, indicating good to excellent reliability. Cronbach's alpha was not applicable to the "Definition of toxic manager" dimension because it consisted of a single item.

Pilot Study

A pilot study was conducted on 10% of the sample size ($N = 7$) to assess the clarity, understandability, and feasibility of the study tools and to estimate the time required for completion. Minor modifications were made, including rewording some unclear items and adjusting the sequence of questions. As these modifications did not alter the content, structure, scoring, objectives, study population, or outcome measures, the pilot participants were retained, and their data were included in the final analysis. This approach is consistent with methodological guidance for internal pilot studies, which supports combining pilot and main-study data in the final analysis when no substantive changes are made to the intervention or outcome measures (Corley *et al.*, 2024). This phase took about one month (January 2025).

Procedure

The educational program of the current study was conducted through four phases: assessment, planning and development, implementation, and evaluation and follow-up.

First Phase: Assessment

The researcher met with the director of Main Assuit University Hospital, Egypt to explain the aim and procedures of the study and to obtain the necessary information regarding the demographic characteristics of the participating nurse managers. During this phase, the toxic management knowledge scale was administered to assess nurse managers' knowledge of toxic management. The average time required to complete the questionnaire ranged from 15 to 20 minutes. This phase was conducted over a period of three months, from February to April 2025.

Second Phase: Planning and Development

Based on the findings of the pre-test assessment, the researcher designed and developed an educational program on toxic management for nurse managers. The results obtained during the assessment phase served as the foundation for determining the program content and learning objectives. A booklet on toxic management was developed and used as a learning handout for participants. In addition, the researcher prepared the program schedule, arranged the learning environment, and secured all resources required for program implementation.

The educational booklet and program content were reviewed by a panel of five experts from the Nursing Administration and Community Health Nursing Departments to evaluate the relevance, comprehensiveness, and clarity of the content. Necessary modifications were made based on their recommendations. This phase was completed over a two-month period, from May to June 2025.

General Objective of the Program

The educational program aimed to equip nurse managers at Main Assuit University Hospital with the essential knowledge and skills related to toxic management.

The program aimed to enhance participants' understanding of toxic management by enabling them to define toxic management and toxic managers, describe their characteristics and traits, and identify the various types of toxic managers. Furthermore, the program aimed to develop participants' cognitive abilities by analyzing the causes and consequences of toxic management, identifying its key characteristics, recognizing common toxic workplace behaviors, and explaining methods for assessing toxic management.

In addition, the program focused on strengthening practical competencies by enabling participants to apply effective strategies for preventing and managing toxic management practices. The program also aimed to enhance transferable skills, including effective communication, time management, and the appropriate use of technology.

Training Setting

The educational program was conducted at the continuing training and education center at Main Assuit University Hospital.

Table 2: Timetable of the Educational Program (Day 1 and Day 2)

Day	Session	Content	Teaching Methods
First Day	Session (1)	Registration Introduction Program Opening	Not applicable (administrative/orientation activity)
		Expectations and program Objectives	Brainstorming and group discussion
	Session (2)	Definition, causes and characteristics of toxic management	Short lecture, group discussion, brainstorming, role-play, and case study
	Session (3)	- Examples of common toxic behaviors found in workplaces - Consequences of toxic management	Short lecture, group discussion, "Inbox" activity, and small group work
Second Day	Session (1)	Definition, traits, and types of toxic managers	Short lectures, brainstorming, and role playing
	Session (2)	- Evaluating toxic management - Strategies to avoid or overcome toxic management	Short lectures, group discussion, case study, small group work, role-playing
	Session (3)	Post-test, participant's feedback form, and Program Closing	Not applicable

Table 2 presents the sessions, educational content, and teaching methods used across both days of the educational program.

Third Phase: Implementation

The researcher delivered the program to all nurse managers ($N = 70$), divided into three groups because simultaneous training was not feasible. Each group received six sessions over two days (6 hours/day). The groups were organized by the researcher in collaboration with the Nursing Administration Office to ensure continuity of work within the hospital units during the training period.

All program topics were presented by the researcher based on adult learning theory (andragogy) (Knowles *et al.*, 2025), emphasizing active participation, learner engagement, relevance to participants' professional experience, and practical application. At the beginning of the first session, participants received an orientation to the program and its objectives. They were informed about the training schedule, session venue, break times, and the duration of each session. A training agenda covering the two-day program was distributed to all participants on the first day of training.

Various teaching methods were employed to enhance participants' engagement and learning. These methods included short lectures, small-group discussions, brainstorming sessions, case studies, group work activities, role-playing exercises, and inbox activities. In addition, several educational aids were utilized to support the learning process, including handouts, an educational booklet, PowerPoint presentations, flip charts, images and illustrations, and video materials.

Fourth Phase: Evaluation and Follow-up

Immediate Evaluation: Upon completion of the educational program, the Toxic Management Knowledge Questionnaire was re-administered (post-test) to assess nurse managers' knowledge regarding toxic management following the intervention. **Follow-up evaluation:** Three months after program completion, a follow-up assessment was conducted to evaluate participants' retention of knowledge gained through the educational program. All 70 nurse managers who participated in the pre-test completed the immediate post-test and three-month follow-up assessments; therefore, no participant attrition occurred during the study.

A participant feedback form was also distributed immediately after the program to assess participants' views of the educational experience.

Statistical Design

Data was coded and analyzed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented as frequencies, percentages, means, and standard deviations. Changes in nurse managers' knowledge scores across the pre-test, post-test, and follow-up assessments were analyzed using repeated-measures ANOVA with Greenhouse–Geisser correction, followed by Bonferroni-adjusted pairwise comparisons. Effect size was reported using partial eta squared (η^2p). Statistical significance was considered at $p < 0.05$.

Ethical Consideration

The study was approved by the Ethical Committee of the Faculty of Nursing, Assiut University, Egypt, with approval number 1120240905 on 27th October 2024.

RESULTS

Table 3: Distribution of Demographic Characteristics of the Nurse Managers Participating in the Educational Program (n=70)

Demographic Characteristics	No.	%
Age (years)		
<30 yrs.	33	47.1%
30 -<40 yrs.	17	24.3%
≥ 40 yrs.	20	28.6%
Mean ± SD	34.86 ± 8.48	
Gender		
Male	20	28.6%
Female	50	71.4%
Marital Status		
Single	23	32.9%
Married	42	60.0%
Divorced	1	1.4%
Widow	4	5.7%
Educational Qualification		
Secondary Nursing School.	7	10.0%
Technical Nursing Institute.	1	1.4%
Bachelor's Degree in Nursing.	56	80.0%
Master's Degree in Nursing.	6	8.5%
Years of Experience		
<10 yrs.	32	45.7%
10 -<20 yrs.	16	22.9%
≥ 20 yrs.	22	31.4%
Mean ± SD	12.97 ± 8.90	

Frequencies (number, percentages, mean and SD)

Table 3 displays that nearly half of the nurse managers are younger than 30 years of age and have less than 10 years of experience (47.1% and 45.7%, respectively). Most participants are female, married, and have bachelor's degrees in nursing (71.4%, 60.0%, and 80.0%, respectively).

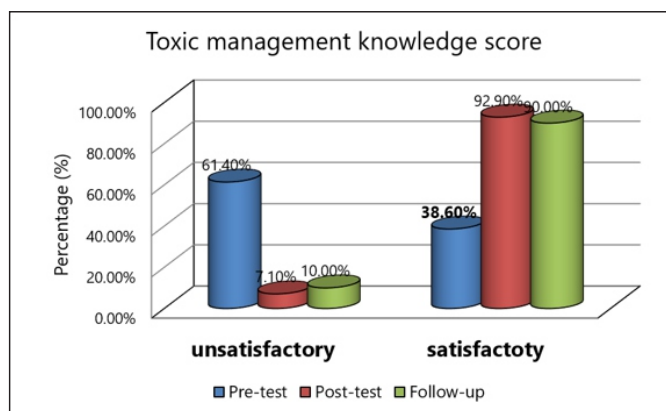


Figure 1: Distribution of Nurse Managers Regarding to their Toxic Management Knowledge Scores during the Pre-Test, Post-Test, and Follow-up Phases (n=70)

As illustrated in Figure 1, (61.40%) of nurse managers have unsatisfactory score regarding toxic management during the pre-test phase. In contrast, (92.90%) have satisfactory knowledge score immediately after the educational program, and (90.00%) have satisfactory knowledge score during the follow-up phase. There were highly statistically significant differences between the pre-test and post-test phases, as well as between the pre-test and follow-up phases ($p < 0.001$).

Table 4: Comparison of the Mean Knowledge Scores for the Toxic Management Dimensions across the Pre-Test, Post-Test and Follow-up Phases among Nurse Managers (n= 70)

Dimensions	Pre-test	Post-test	Follow-up	P-value1	P-value2	P-value3
	Mean $\pm$ SD (% of max. score)	Mean $\pm$ SD (% of max. score)	Mean $\pm$ SD (% of max. score)			
Definition of Toxic Management	1.00 $\pm$ 0.34 (50.0%)	1.17 $\pm$ 0.51 (58.5%)	1.17 $\pm$ 0.34 (58.5%)	<0.001*	<0.001*	1.000
Characteristics of Toxic Management	2.80 $\pm$ 0.97 (56.0%)	3.21 $\pm$ 0.72 (64.2%)	3.07 $\pm$ 0.77 (61.4%)	<0.001*	<0.001*	0.835
Causes of Toxic Management	2.41 $\pm$ 0.67 (30.1%)	3.70 $\pm$ 1.88 (46.2%)	2.49 $\pm$ 0.65 (31.1%)	<0.001*	<0.001*	0.941
Impact of Toxic Management	2.03 $\pm$ 0.99 (40.6%)	2.64 $\pm$ 0.29 (52.8%)	1.96 $\pm$ 0.40 (39.2%)	<0.001*	<0.001*	0.925
Definition of Toxic Manager	0.13 $\pm$ 0.34 (13.0%)	1.00 $\pm$ 0.00 (100.0%)	0.87 $\pm$ 0.34 (87.0%)	<0.001*	<0.001*	1.000
Traits of Toxic Manager	5.59 $\pm$ 1.72 (50.8%)	6.23 $\pm$ 0.46 (56.6%)	6.19 $\pm$ 0.46 (56.3%)	<0.001*	<0.001*	0.924
Types of Toxic Managers	5.13 $\pm$ 1.62 (57.0%)	6.96 $\pm$ 0.88 (77.3%)	6.89 $\pm$ 0.73 (76.6%)	<0.001*	<0.001*	0.964
Assessment of Toxic Management at Work	3.40 $\pm$ 2.30 (48.6%)	5.81 $\pm$ 0.87 (83.0%)	5.66 $\pm$ 0.93 (80.9%)	<0.001*	<0.001*	0.938
Strategies to Avoid or Overcome Toxic Management	8.44 $\pm$ 4.34 (56.3%)	12.03 $\pm$ 0.82 (80.2%)	11.93 $\pm$ 0.77 (79.5%)	<0.001*	<0.001*	1.000
Total Knowledge Score	34.00 $\pm$ 7.81 (54.0%)	40.73 $\pm$ 2.06 (64.7%)	39.97 $\pm$ 1.92 (63.4%)	<0.001*	<0.001*	0.148

Repeated-measures ANOVA showed a significant overall effect, $F(1.231, 84.924) = 46.115$, $p < 0.001$, with a large effect size (partial $\eta^2 = 0.401$). Mean differences (95% CI) were 6.73 (5.02–8.43) for pre-test vs. post-test, 5.97 (4.09–7.86) for pre-test vs. follow-up, and $-0.76 (-1.51-0.003)$ for post-test vs. follow-up; corresponding effect sizes (r) were 0.69, 0.61, and -0.23 , respectively.

P1: represents the comparison between pre and post-test

P2: represents the comparison between pre and follow-up

P3: represents the comparison between post and follow-up

Table 4 shows the magnitude of changes in the total knowledge score across the study phases. Significant differences were found between the pre-test and post-test ($p < 0.001$) and between the pre-test and follow-up ($p < 0.001$) for the total knowledge score, with no significant difference observed between the post-test and follow-up ($p = 0.148$). The total knowledge score increased from pre-test to post-test and from pre-test to follow-up, with large effect sizes ($r = 0.69$ and $r = 0.61$, respectively)

Table 5: Distribution of Participant's Feedback Regarding the Educational Program Content (n=70)

Educational Program Content	Poor		Acceptable		Good		Very Good		Excellent	
	N	%	N	%	N	%	N	%	N	%
The Program Objectives are Realistic	0	0.0	0	0.0	1	1.4	16	22.9	53	75.7
The Program Goals are Measurable	0	0.0	0	0.0	1	1.4	34	48.6	35	50.0
Balance Between Theoretical and Practical Goals	0	0.0	0	0.0	9	12.9	27	38.6	34	48.6
Appropriateness of the Study Topics to the Timetable	0	0.0	0	0.0	2	2.9	15	21.4	53	75.7
Adequacy of the Study Topics to Achieve the Program Objectives	0	0.0	0	0.0	2	2.9	19	27.1	49	70.0
Suitability of Topics to Trainees' Levels	0	0.0	0	0.0	10	14.3	22	31.4	38	54.3
Modernity of the Educational Program Content	0	0.0	0	0.0	3	4.3	33	47.1	34	48.6
Compatibility of Educational Activities with the Study Topics	0	0.0	0	0.0	20	28.6	15	21.4	35	50.0
Educational Content was Clear and Understandable	0	0.0	0	0.0	6	8.6	26	37.1	38	54.3
The Scientific Content of the Educational Program was Attractive	0	0.0	2	2.9	28	40.0	9	12.9	31	44.3

Frequencies (number and percentage)

Table 5 depicts that the highest percentage of nurse managers (75.7%, 75.7% & 70.0%, respectively) rated the following aspects of the educational program as excellent: the realism of the program objectives, the appropriateness of the study topics in relation to the timetable, and the adequacy of the study topics for achieving the program objectives.

Table 6: Distribution of Participant's Feedback Regarding the Appropriateness of the Educational Program (n=70)

Program Appropriateness	Poor		Acceptable		Good		Very Good		Excellent	
	n	%	n	%	N	%	n	%	n	%
Date of Program Implementation	0	0.0	0	0.0	2	2.9	60	85.7	8	11.4
Time of Session Implementation	0	0.0	0	0.0	12	17.1	39	55.7	19	27.1
Program Duration	0	0.0	0	0.0	8	11.4	38	54.3	24	34.3
Classroom Preparation	0	0.0	7	10.0	27	38.6	30	42.9	6	8.6
Organization of Participants in the Classroom	0	0.0	4	5.7	29	41.4	31	44.3	6	8.6
Supportive Services (Breaks and Educational Materials)	0	0.0	0	0.0	3	4.3	57	81.4	10	14.3

Frequencies (number and percentage).

Table 6 shows that the highest percentage of nurse managers (85.7% and 81.4%, respectively) rated the date of program implementation and the supportive services provided during the program (e.g., breaks and educational materials) as very good.

DISCUSSION

Nurse managers play a pivotal role in fostering positive work environments and promoting nursing engagement within healthcare settings. Their managerial skills are important for effective leadership and the smooth running of the organization (Al-Nasri, 2024). Educational programs addressing toxic management may further strengthen managers' awareness of harmful leadership behaviors and appropriate management strategies (Othman *et al.*, 2024). Building on this perspective, the current study extends beyond the descriptive assessment of toxic management by evaluating an educational intervention designed to strengthen nurse managers' knowledge and understanding of toxic management and its preventive strategies.

Regarding the demographic characteristics, nearly half of the nurse managers were younger than 30 years and had less than 10 years of experience, while most were female, married, and held a bachelor's degree in nursing. The relatively limited managerial experience among some participants may highlight the importance of targeted leadership development to strengthen managers' competencies and awareness of challenging workplace behaviors. These characteristics were generally comparable to those reported among nurse managers in previous studies (Shurab *et al.*, 2024; Sarsenbay *et al.*, 2025). Recent evidence emphasizes the value of structured leadership development in supporting nurse leaders' knowledge, skills, and managerial competencies, particularly among novice or developing nurse managers (Bookey-Bassett *et al.*, 2025).

Most nurse managers had unsatisfactory knowledge before the program, whereas the majority achieved satisfactory knowledge immediately after the intervention, with the improvement maintained at follow-up. The sustained scores for three months suggest that the acquired learning was retained beyond the immediate training period. The observed improvement in knowledge may be attributed to the structured nature of the program and its practical and interactive learning methods. The use of case-based discussions, role-play, and workplace-related examples may have helped participants translate theoretical concepts into practical managerial responses, thereby making the content more relevant to their everyday responsibilities.

Similar improvements in managerial practices and competencies have been observed following educational interventions among nurse managers, including enhanced managerial knowledge and leadership competencies (Ghonem & El-Husany, 2023; Aqtash *et al.*, 2022). Studies examining structured leadership development programs have similarly demonstrated that training interventions can improve nurse managers' managerial practices and leadership competencies (Emam *et al.*, 2024; Välimäki *et al.*, 2024). These findings align with previous evidence indicating that structured leadership interventions can strengthen nurse managers' knowledge, leadership capabilities, and managerial effectiveness. However, variations in intervention content, duration, and study design should be considered when comparing outcomes across studies Aly *et al.*, 2024

The particularly high post-test score for “assessment of toxic management at work” and “strategies to avoid or overcome toxic management” may indicate that the practical orientation of the program, including case studies, role-play, group discussions, and workplace-related examples, may have helped participants connect conceptual knowledge with appropriate responses to challenging managerial situations. This pattern is

consistent with adult learning principles, which hold that content directly relevant to learners' professional experience and practical application is more readily acquired than abstract material (Knowles *et al.*, 2025).

This interpretation is consistent with evidence that leadership development can strengthen practical managerial competencies, including problem-solving and decision-making skills (Goktepe *et al.*, 2018; Elkhyer *et al.*, 2022). Moreover, developing managerial awareness and leadership strategies has similarly been suggested as an important approach to addressing toxic behaviors (Mekawy & Ismail, 2022).

Most nurse managers rated the educational program positively, particularly its objectives, content, and organization. This favorable evaluation suggests that the program was perceived as relevant and appropriately structured to meet participants' learning needs. The positive response may also reflect the suitability of the practical and interactive activities used throughout the program, which encouraged participant engagement and connected the educational content with managerial situations. Nurse managers have also reported similar positive evaluations of leadership and management development programs (Al-Nasri, 2024; Shurab *et al.*, 2024). In addition, favorable ratings of implementation arrangements and supportive services may indicate that appropriate logistical planning contributed to a conducive learning environment, consistent with findings reported in other nursing educational interventions (Hatem & Muhammad, 2024).

From an organizational perspective, strengthening nurse managers' knowledge of toxic management may support greater awareness of harmful managerial behaviors and the selection of appropriate strategies for their prevention and management. This awareness is particularly important because toxic leadership has been associated with adverse workplace experiences and nurses' well-being, including poorer quality of work life (Tawfik *et al.*, 2025), as well as broader organizational and care-related outcomes (Sarsenbay *et al.*, 2025; Alshmemri, 2026). Toxic leadership among nurse managers has also been linked to nurses' whistleblowing intentions, highlighting the importance of supportive environments for safe reporting (Abdelrahman *et al.*, 2025).

Therefore, incorporating toxic management education into continuing professional development may support healthier leadership practices and contribute to a more positive work environment, particularly when reinforced by clear organizational policies and supportive leadership structures.

Limitations

Despite the valuable findings of this study, some limitations should be acknowledged. The single-setting design limits generalizability, while the absence of a control group limits causal interpretation. Repeated administration of the same questionnaire may have introduced testing effects, and self-reported measures may have caused response bias. In addition, the researcher developed and delivered the program and collected data without blinding, which may have introduced researcher or social desirability bias. Finally, the three-month follow-up limited assessment of long-term sustainability.

Future Scope

Future research should use controlled or randomized designs with longer follow-up periods to confirm the effectiveness and sustainability of educational programs on toxic management. Further studies should also examine whether improved knowledge translates into changes in managerial behaviors and workplace outcomes across diverse healthcare settings.

CONCLUSION

The educational program was associated with improved nurse managers' knowledge regarding toxic management, with the greatest improvement observed immediately after the intervention and largely maintained at the three-month follow-up, particularly in relation to the practical, applied dimensions of assessing and addressing toxic management. Given the one-group, uncontrolled design and reliance on self-reported knowledge, these findings should be interpreted as preliminary evidence generating the hypothesis that a structured, interactive educational program may strengthen nurse managers' knowledge and awareness of toxic management, rather than as confirmed proof of its effectiveness on managerial behavior or organizational outcomes.

Recommendations

Healthcare organizations should integrate toxic management education into continuous professional development and establish supportive leadership policies. Future research should use longitudinal designs with extended follow-up to assess program sustainability and applicability across diverse healthcare settings.

CRedit Authorship Contribution Statement

A.K.KH.: Conceptualization, methodology, formal analysis, writing – original draft. **H.M.A.:** Supervision, data curation, revision and editing. **S.M.A.:** Supervision, revision and editing. All authors contributed to data analysis, participated in drafting and revising the manuscript, approved the final version for publication, and agreed to be accountable for all aspects of the work.

AI Assistance Declaration

The authors declare that generative AI tools (such as Chat GPT) were used only for language enhancement and grammar correction during the preparation of this manuscript. The authors have carefully revised the content and taken full responsibility for the final version of the manuscript.

Conflict of Interest

The authors declare that they have no competing interests.

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