Effect of Servant Leadership Training Program on Sustainable Development Behavior of Head Nurses

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Abstract

Background: Servant Leadership in nursing is closely related to the ability to influence nurse teams and hospital patients. Servant leadership is defined as "excessive service to others, a holistic approach to work, fostering a feeling of togetherness, and the sharing of authority in decision-making". **Aim of the study:** the study aimed to assess the effect of servant leadership training program on sustainable development behavior of head nurses. **Subjects and Methods: Research design:** A quasi-experimental research design was utilized in this study. **Setting:** The study was conducted at Zagazig University Hospitals, which include two sectors the Emergency sector and El-Salam sector **Subjects:** Convenience sample, All head nurses (n=100) who working in the above mentioned setting and they were divided randomly into two equal groups; study group and control group. **Tools of data collection** three tools were used for data collection (1) knowledge questionnaire test, which included head nurses' personal data and head nurses' knowledge test regarding Servant leadership (2) Servant leadership skills questionnaire. (3) Sustainable development behavior scale **Results:** There was a statistically significant difference in head nurses' knowledge and skills pre, post and follow up after applying Servant leadership training program. There was statistically significant relation between head nurses' knowledge and skills regarding Servant leadership and sustainable development behavior. **Conclusion:** The training program for head nurses was effective and improved their level of knowledge and skills also there was statistically significant relation between head nurses' knowledge and skills regarding Servant leadership and sustainable development behavior. **Recommendations:** A Servant leadership educational program is recommended to be recognized and implemented for all head nurses who in a management position in the nursing field in other hospitals. Hospital and nursing administrators should do their best for keeping and enhancing nurses' sustainable development behavior

Keywords: Servant Leadership, Head nurses, sustainable development behavior.

Introduction

The Servant leadership style has been proposed as a potential style to assist healthcare organizations in adapting to the ever-evolving work environment. Whether intentional or unintentional, a Servant leader demonstrates to team members that value others, and be receptive to new ideas and information. Each team member can learn and copy the good behavior of Servant leaders, and over time, the team can work together better. Servant leaders will improve the behavior of staff members done by their staff members to achieve common objectives, as that enables staff to learn how to work together to mobilize resources. This implies that nurses have the freedom to determine the nature and process of their teamwork **(Pradana & Suhariadi, 2020, Zhu et al., 2022).**

Servant leadership has principles and characteristics aligned with nursing values, such as caring, empathy, listening, humility, service, altruism, emotional healing, and commitment to the development and well-being of others. Servant leadership enhances staff's personal growth while increasing organizational effectiveness through teamwork, community building, and joint decision-making. Furthermore, servant leadership, is considered 'more than just a leadership style', it is a philosophy and set of practices that enriches the lives of individuals, builds better organizations and ultimately creates a more just and caring world. The servant leader is servant first. It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead **(Best, 2020).**

Successful nursing leadership highlights the crucial part of leaders for prospection their teamwork nurses' action at the workplace. A nurse manager's servant leadership skill positively affects the performance of the staff in the organization. The importance of servant leadership as role models is to encourage sustainable behavior among employees and nurses by converting nurses green routine-work behavior to more sustainability-oriented behaviors at their workplace and utilizing best nurses creative ideas for self or organization development **(Godsey et al., 2020).**

Broadly, sustainable development denotes the different groups of actions that intend to preserve the environment, such as using and converting natural resources in a more effective manner. Sustainable development behaviors in the nursing field portray the target of nurses to consciously decrease the harmful effect of their actions on the natural work environment and achieving goals by continuous improvement of nurses' talents. Sustainable behaviors as continuing training and education programs, modern technology usage, applying international safety standards and infection control measures **(Sorour, &Elkholy, 2021).**

Sustainable development behaviors include three main aspects; environmental, economic, and social components. Sustainable environmental management behaviors include creating new environmental technology, utilizing renewable energy sources, and conserving the environment. Sustainable economic management behaviors involve maximizing revenues and financial growth while minimizing overall consumption. Socially sustainable management behaviors incorporate citizenship, social reporting, and talent preservation **(Algabar et al., 2023).**

Significance of the Study

Servant leadership focuses on excessive service to others, a holistic approach to work, fostering a feeling of togetherness and the sharing of authority in decision-making **(Ebrahim, et al., 2024).** Sustainability is the integration of ecological, globalization and holistic thinking, as the foundation of nursing practice **(Álvarez-Nieto et al., 2024).** Effective strong servant leadership is fundamental to several aspects in the organizational life which improves sustainable development behavior strength **(Cummings, et al., 2020 & Gouda, et al., 2021).** There are few international studies have focused on examination of the relation between Servant leadership and sustainable development behavior **(Sorour et al., 2021).**, but in Egypt there have been no studies implement training program regarding Servant leadership for head nurses and measure its effect on sustainable development behavior.

Through the researcher contacts with head nurses in Zagazig University Hospitals found that head nurses leaders don't apply servant leadership and sustainable development behavior in their different units, Therefore, it is very important to implement training program regarding servant leadership for head

nurses to equip them with knowledge and skills about servant leadership and how to use servant leadership to increase sustainable development behavior.

Aim of the study:

The aim of the study was:

To assess the effect of servant leadership training program on sustainable development behavior of head nurses.

Research hypothesis:

- Head Nurses' knowledge and skills about servant leadership will be improved after implementation of training program.
- The sustainable development behavior level of Head nurses will be improved after implementation of training program.
- **Subjects and Methods:**

Research design: A quasi-experimental design was used to achieve the aim of the present study.

Study Setting:

The study was conducted at Zagazig University Hospitals (academic hospitals), which include two sectors (The emergency sector and El-Salam sector) involving eight teaching hospitals. The total bed capacity of the hospitals is (2027 beds and 16 incubations).

Study Subjects:

Convenience sample, All head nurses (n=100) who working in the above mentioned setting and they were divided randomly into two equal groups; study group (50) and control group (50). Sample size of head nurses (n=100) in the study setting

Tools for data collection:

In order to fulfill the objectives of the study three tools were used to collect necessary data:

Tool 1: Servant leadership Knowledge questionnaire test (Pre / Post-Test): It consists of two parts as follows

Part 1: Personal characteristics of nurses, which included head nurses' age, gender, hospital name, educational qualification, years of experience, and attending previous training about servant leadership.

Part two: It was developed by the researcher based on review of related literature as (Avolio and Bass, 2004; Roberts & Mihai, 2005 and Mark, 2018). It included 68 questions divided into (37) question true or false questions and (31) multiple choice questions which included servant leadership definition, characteristics, skills, benefits and components.

Scoring system:

Responses of head nurses were scored (1) for correct answer and incorrect was scored (0). For each items of knowledge, the scored of this item were summed up and the total divided by the number of items, giving a mean score for the part. These scores were converted into percent score. Knowledge was considered

- Satisfactory if percent score was 60% or more (41-68) points
- Unsatisfactory if less than 60% (0-40) points

Tool II: **Servant leadership skills questionnaire**

It was developed and observed by the investigator based on review of related literature as (Russell, 2016; Allen, 2019 and Mark, 2019) to assess head nurses' skills about servant leadership. It composed of 48 items about servant leadership skills

Scoring system:

Head nurses skills of servant leadership were observed as "done" which scored (1) and "not done" which scored (0). The scores of the items were summed up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score. The skills were considered:

- Adequate if the percent score was 60% or more (29-48) points
- Inadequate if less than 60% (0-28) points

Tool III: Sustainable Development Behavior scale

It was developed by Dumitru (2015) to measure head nurses' response levels about sustainable development behavior at their workplace; it consists of (21 items).

Scoring system:

Nurses' responses were measured on a five-point Likert scale ranging from (1) response that means "not at all" to (5) "answer which represents a great extent". The total score of sustainable development behavior was ranged from (21–105), these scores were multiplied by 100 to be converted into percent score. The total level of sustainable development behavior among nurses considered:

- **Low sustainable development behavior** if the score less than 40%.
- **Moderate sustainable development behavior** if the score range from 40% to 60%.
- **High sustainable development** behavior if the score more than 60% **(Dumitru et al., 2015).**

Content Validity and Reliability:

Validity:

The questionnaire was translated into Arabic, and then content and face validity were established by panel of five experts: all professors were from nursing administration department at the faculty of nursing, Zagazig University Experts were requested to express their opinions and comments on the tool and provide any suggestions for any additions or omissions of items. According to their opinions all recommended modifications were performed by the researcher.

Reliability:

Three tools were tested for their reliability using Cronbach's alpha. The values were revealed as

f tool	h's alpha
leadership Knowledge questionnaire	
leadership skills questionnaire	
ble Development Behavior scale	

Pilot study:

A pilot study was carried out on 10% of head nurses (10) to test the tools feasibility, understandability and to estimate the time consumed for filling in the forms. A brief explanation of the purpose of the study was provided to every participant in the pilot study, and then they were provided with a copy of the study tools. The time consumed in answering the questions was about 20- 30 minutes for each tool. These head nurses were included in the main study sample. The necessary modifications were done according to the answers and comments made by head nurses.

Field work:

Field work of this study was executed in 2 months from the beginning of June 2024 to the end of July 2024. The researcher applied the training program for study group at clinical areas in zagazig university hospitals. The training program designed for this study has been implemented through 12 sessions. These sessions lasted for 24 hours; 9 hours theory, and 15 practical hours. It was difficult to take the whole number of head nurses in the study group at the same time, so the head nurses were divided into groups, all sessions were repeated to all groups until 50 head nurses completed the entire 24 hours of instructions. The program consisted of two main parts, the first theoretical part covers knowledge about servant leadership such as; definitions of servant leadership, the nature of servant leadership, characteristics of servant leadership , elements of servant leadership, importance of servant leadership, purposes of servant leadership and general skills of servant leadership (communication skills, Listening skill, Empowerment skill, Stewardship skill, Persuasion skills, Motivation skills, Delegation skill, Team building skill, problem solving skill and Decision making skill).

The second part is practical in the form of giving situations for head nurses who are leaders in there clinical units. head nurses in each group are asked to read situation, the researcher assigned a group leader randomly to assist in distributing roles on head nurses per each group, then head nurses play their roles according to situation; head nurses play roles by rotation to learn how to deal according to assigned role. At the end of each session, the researcher used group discussion to develop the appropriate skills of servant leadership of head nurses and to gain feedback. The researcher evaluated their servant leadership

skills used in dealing with different situations by using observational checklist. The program was given on three days per week for each group about eight weeks. The researcher used various teaching methods to attract head nurses' attention and motivate them to participate such as lectures, group discussion, brainstorming, role play and situation. The teaching media included: power point, white board, video, and a copy of the program which covered theoretical and practical information about servant leadership.

Administration and Ethical consideration:

- An official letters obtained from the dean of faculty of nursing at Zagazig University to Chairman of board of directors at Zagazig University Hospitals to request permission and cooperation for conducting this study, then oral official permission from the nursing director of each hospital and from the head nurses of each unit after explaining the nature and the aim of the work

The study was approved by the Ethics Research Committee at the Faculty of Nursing; Zagazig University. The verbal explanation of the nature, purpose, and benefits of the study was performed by the researcher to head nurses included in the study sample. Oral and written consent were taken from subjects and reassured them about the confidentiality and anonymity of the study. They were informed about their right to refuse or withdraw from the study at any time without giving a reason.

Statistical Analysis:

All data were collected, tabulated and statistically analyzed using SPSS 20.0 for windows (SPSS Inc., Chicago, IL, USA 2011). Quantitative data were expressed as the mean ± SD &median (range), and qualitative data were expressed as absolute frequencies (number) & relative frequencies (percentage). Paired test was used to compare between paired variable of normally distributed. Repeated measure anova was used to compare between multiple paired variable of normally distributed. Percent of categorical variables were compared using Chi-square test or Fisher Exact test. Pearson's correlation coefficient was calculated to assess relationship between various study variables, (+) sign indicate direct correlation & (-) sign indicate inverse correlation, also values near to 1 indicate strong correlation & values near 0 indicate weak correlation. All tests were two sided. p-value < 0.05 was considered statistically significant (S), and p-value ≥ 0.05 was considered statistically insignificant (NS).

Results:

Table (1): shows personal characteristics of head nurses, it is clear from the table that slightly less than one half of head nurses in the study and control groups were in the age group 46 to 50 years old (44% & 46% respectively). All of head nurses in the study and control groups were females, had Bachelor degree in nursing, more than half of them had 22-26 years of experience (52% & 54% respectively). As well, the highest percentages of head nurses in the study and control groups worked at Internal medicine hospital and Outpatient clinics (28%, & 60%respectively). Regarding to head nurses' previous training, no one of them had attended previous training before this program about servant leadership.

Figure (1): displays knowledge levels of head nurses regarding servant leadership throughout the program phases in the study and control groups. It is clear from the figure that the highest percentage of head nurses had unsatisfactory knowledge level regarding servant leadership before program implementation in both study and control groups (*92*%, *96*%, respectively). Conversely, immediately after program implementation all of head nurses in the study group had satisfactory level of knowledge about servant leadership (100%) compared to 4% of head nurses in control group. Additionally, three months after the program implementation, the most head nurses in the study group had satisfactory level of knowledge about servant leadership (98%) compared to 0% of head nurses in control group, so the program improved head nurses' knowledge regarding servant leadership. Hypothesis one accepted.

Figure (2): It can be observed from figure 2 the majority of head nurses had adequate level of skills regarding servant leadership in study group (86%), despite one half of head nurses had adequate level of skills and other half of them had inadequate level of skills in control group before the program implementation (50% & 50% respectively). While after the program implementation, 96% of head nurses in the study group had adequate level of skills regarding servant leadership compared to control group only 56% of them had adequate levels of skills. In addition, three months after program implementation

96% of head nurses in the study group had adequate levels of skills regarding servant leadership compared to control group only 52% of them had adequate level of skills. Hypothesis one accepted.

Figure (3): displays that the highest percentage of head nurses had moderate level of Sustainable development behaviours before program implementation in both study and control groups (80%, 90%, respectively). While after the program implementation all head nurses in the study group had high level of Sustainable development behaviours compared to control group only (4%) of them had high levels of Sustainable development behaviours. In addition, three months after program implementation all head nurses in the study group had high levels of Sustainable development behaviours compared to control group none of them had high levels Sustainable development behaviours. Hypothesis two accepted.

Table (2): shows Correlation among head Nurses ' knowledge and Skills regarding Servant leadership and Sustainable development behaviours throughout the program phases implementation in the study group. The current table shows there was statistically significant relation between Servant leadership's knowledge and Sustainable development behaviours before program implementation at P-value= (0.000). In addition, there was statistically significant relation between Servant leadership's Skills and Sustainable development behaviours before, after and three months after program implementation at P-value= (0.000, 0.000, 0.000) respectively.

Table 1: Personal and job characteristics of Head Nurses (n=100).

| Personal characteristics	Study group		Control group		χ^2	P-value
	No	%	No	%		
Age in years						
40 to 45 year	16	32	9	18		
46 to 50 year	22	44	23	46	1.57	0.814
51 to 56 year	12	24	18	36		
Mean ± SD	48.06± 4.19		49.00± 3.23			
Gender						
Male	0	0	0	0	_	_
Female	50	100	50	100		
Years of Experience						
16 to 21 year	11	22	10	20		
22 to 26 year	26	52	27	54	6.60	0.158
27 to 31 year	13	26	13	26		
Mean ± SD	24.22± 3.55		24.14± 3.23			
Educational qualification						
Nursing Diploma	0	0	0	0	_	_
Nursing Technical Institute	0	0	0	0		
Bachelor	50	100	50	100		
Master	0	0	0	0		
Doctorate	0	0	0	0		
Hospital name						
Pediatric hospital	8	16	0	0	_	_
Internal medicine hospital	14	28	0	0		
Cardiac and Chest hospital	10	20	0	0		
Obstetrics and Gynecology hospital	5	10	0	0		
Economic hospital	13	26	0	0		
Accident hospital	0	0	7	14		
General Surgery hospital	0	0	13	26		
Outpatient hospital	0	0	30	60		
Have you ever attended any program on servant leadership?						
Yes	0	0	0	0	_	_
No	50	100	50	100		
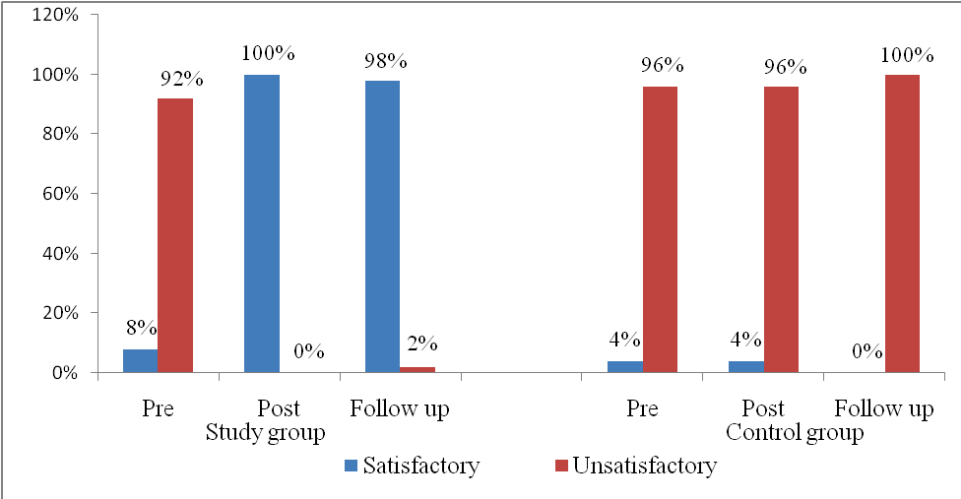
Figure (1): knowledge levels of Head Nurses regarding Servant leadership throughout the program phases in the study and control groups (n= 100)
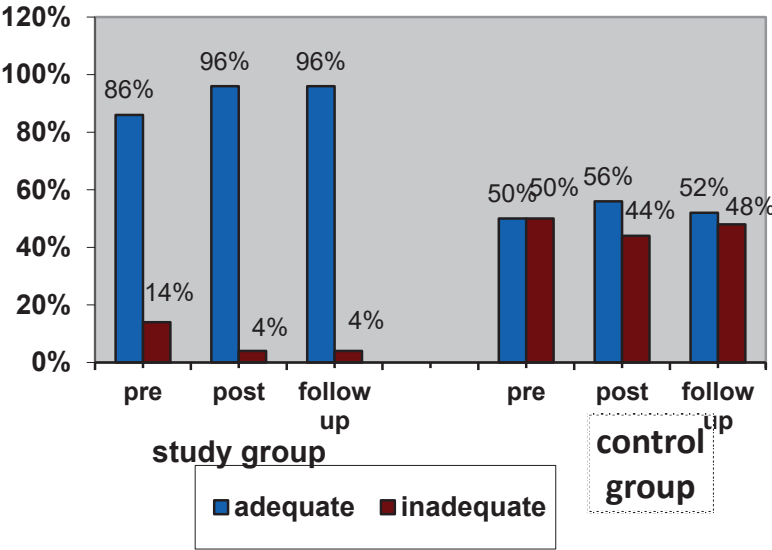

Figure (2): Skills' levels of Head Nurses regarding Servant leadership throughout the program phases in the study and control groups (n= 100)
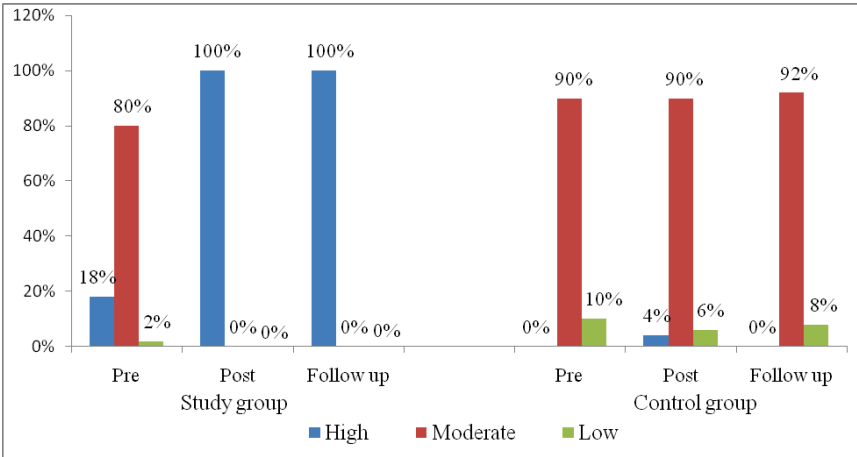

Figure (3): Sustainable development behaviours' levels of Head Nurses throughout the program phases in the study and control groups (n= 100)

Table (2) Correlation among head Nurses ' knowledge and Skills regarding Servant leadership and Sustainable development behaviours throughout the program phases implementation in the study group (n=50)

Items	Time	Sustainable development behaviours					
		Pre		Post		Follow up	
		R	P-value	R	P-value	R	P-value
Servant leadership's Knowledge	Pre	0.520	0.000**	0.146	0.312	0.080	0.580
	Post	0.040	0.783	0.105	0.467	0.110	0.448
	Follow up	0.184	0.201	0.001	0.994	0.216	0.132
Servant leadership's Skills	Pre	0.762	0.000**	0.065	0.653	0.001	0.995
	Post	0.123	0.395	0.562	0.000**	0.037	0.800
	Follow up	0.077	0.594	0.074	0.607	0.646	0.000**

Discussion:

Servant leadership is an important leadership style in nursing; it has principles and characteristics aligned with nursing values, such as caring, empathy, listening, humility, service, altruism, emotional healing, and commitment to the development and well-being of others. Servant leadership improves the behavior of staff members and job crafting done by their staff members to achieve common objectives. Importantly, nurses' job crafting enables staff to learn how to work together to mobilize resources and have the freedom to determine the nature and process of their teamwork *(Pradana & Suhariadi, 2020, Kül & Sönmez, 2021).*

So, this study aimed to assess the effect of servant leadership training program on sustainable development behavior of head nurses through, (1) Assess head nurses' knowledge regarding servant leadership pre-and post-program implementation, (2) Measure head nurses' skills regarding servant leadership pre-and post-program implementation, (3) Determine sustainable development behavior level among head nurses before and after implementation of the program, and (4) Design, and implement servant leadership training program, examine its effect on sustainable development behavior of head nurses.

Regarding demographic characteristics of the participants, the highest percentages of head nurses in the study and control groups worked at Internal medicine hospital and Outpatient clinics (28% & 60% respectively). Furthermore, all of head nurses in the study and control groups had Bachelor degree in nursing and no one of them had attended previous training before this program about servant leadership. This indicates they had no sufficient time for work additionally, attainting courses requires money.

In congruence with these present study findings *Felix, (2023)* who conducted a study about " Servant Leadership in Healthcare: A Pilot Study " reported that most of his participants were females. On the same line, *Ebrahim et al., (2024)* in the study titled in Egypt "Relationship between Servant Leadership and Head Nurses integrity" stated that all of studied head nurses were females (100%), had Bachelor degree in nursing, and majority of them had more than ten years of experience.

The current study revealed that head nurses had a satisfactory level of knowledge regarding servant leadership during the post and follow up training program phases than preprogram phase. Additionally, there were highly significant statistical differences regarding servant leadership knowledge during pre, post & follow up training program. These results might be due to the interest of head nurses with this new program content.

This finding was consistent with *Farouk, (2022)* who conducted study about " Servant Leadership Training Program for Head Nurses and its Effect on their Staff Nurses' Commitment " and reported that there appeared to be an increase in knowledge of servant leadership after training and participants identified how new knowledge around servant leadership was gained as a result of the program.

On the other hand, the present study was in disagreement with with **Gao et al., (2023)** who conducted a study about " Avoiding the scenario of "The farmer and the snake": the dark side of servant leadership and an intervention mechanism " and reported that leaders should acquire a greater awareness of the potential shortcomings produced by adopting a servant style of leadership.

The present study revealed that   The present study revealed that the majority of head nurses had adequate level of skills regarding servant leadership in study group (86%), despite one half of head nurses had adequate level of skills and other half of them had inadequate level of skills in control group before the program implementation (50% & 50% respectively). While after the program implementation, 96% of head nurses in the study group had adequate level of skills regarding servant leadership compared to control group only 56% of them had adequate levels of skills. In addition, three months after program implementation 96% of head nurses in the study group had adequate levels of skills regarding servant leadership compared to control group only 52% of them had adequate level of skills. Hypothesis one accepted.

The current result was go on with **Ma, (2022)** who reported that head nurses working in Kumming Medical University hospitals perceived a high level of servant leadership performance after training.

On the other hand the present study was in disagreement with **Liao et al., (2021)** who proved that nurse managers need more training regarding servant leadership skills due to lack of skills regarding servant leadership after attending a small training course and reported that servant leadership may be more promising and preferable to other leadership styles in healthcare services.

   The current study indicated that, there were highly statistical significant improvements of head nurses' Sustainable development behaviours level at immediate post and follow up program phases compared with preprogram phase. There were highly statistical significance differences throughout program phases.

Along with the present study findings, a study performed by **Mohamed et al. (2024)** who studied "Human capital sustainability leadership educational interventions: a key for promoting nursing managers' green management practices and resilience" found in his study that after program implementation, there was significant improvement in servant leadership skills, green management practices, sustainable development behavior, and resilience among nurse managers in the study group. In addition, this finding was agreed with **Nduneseokwu et al. (2023)** who studied "Developing environmental transformational leadership with training: Leaders and subordinates environmental behavior outcomes" found in his study that the provided leadership training program developed leaders' and employees' environmental behavior outcomes.

On the same scene, **Yan et al. (2023)** studied "How Can Managers Promote Employee's Sustainability? A Study on the Impact of Servant Leadership on Emotional Labor" found in his study that servant leadership improved employees' sustainable development behaviors.

Regarding correlation among head nurses' knowledge and Skills regarding Servant leadership and Sustainable development behaviours through program phases; The present study illustrated that, there was statistical significant correlation among head nurses' knowledge and Skills regarding Servant leadership and Sustainable development behaviours at preprogram phase, while there was a highly statistical significant correlation among head nurses' knowledge and Skills regarding Servant leadership and Sustainable development behaviours at immediate post and follow up program phases which indicated that, the program had a greater effect on improving head nurses' Sustainable development behaviours throughout post and follow up phases.

From the researcher point of view this might be due to Servant leadership emphasizes ethical behavior and the well-being of others. This ethical foundation aligns closely with sustainable development, which seeks to balance social, economic, and environmental well-being. Additionally, Servant leaders empower their team members to take ownership of their roles and make meaningful contributions. This empowerment can lead to innovative sustainable practices within organizations as individuals are encouraged to think creatively and act responsibly. Servant leaders often prioritize long-term outcomes over short-term gains. This perspective is essential for sustainable development, which requires considering the long-term impacts of actions on the environment and society.

This finding was agreed with **Mohamed et al. (2024)** who studied "Human capital sustainability leadership educational interventions: a key for promoting nursing managers' green management practices and resilience" found in his study that after program implementation ,there was significant improvement in leadership, green management practices, sustainable development behavior, and resilience among nurse managers in the study group after intervention.

Additionally , current study was agreed with **Mansoor et al. (2022)** who studied "Promoting green performance through green human resource practices and green servant leadership" found in his study that, after implementation of servant leadership skills; there was significant promotion in employees' sustainable and environmental behaviors as servant leaders persuaded their employees and made them more environment-friendly. In addition, **Dellve et al. (2020)** who studied "Development of health-promoting and sustainable leadership: follow-up of an intervention study" found in his study that there was a high improvements in servant leadership skills and that led to improvement in handling of work environment issues, sustainable development behavior as well as job satisfaction.

Conclusion:

Based on the study findings about the effect of servant leadership training program on sustainable development behavior of head nurses; It was concluded that, the training program for head nurses was effective and improved their level of servant leadership's knowledge and skill. Furthermore, sustainable development behavior's level of head nurses improved. Additionally, there was statistically significant positive correlation among head nurses' servant leadership's knowledge and skills,and their sustainable development behavior.

Recommendation:

- Nurse Manager needs to motivate head nurses to attend a certified training courses regarding servant leadership as a requirement for head nurses' promotion.

- Periodical assessment of head nurses' knowledge to identify subjects and areas to be covered in education courses of training to improve their servant leadership skills.

- Creating a supportive environment that fosters head nurses' independence and encourages them to practice Sustainable development behaviours.

- Introduce reward programs that motivate head nurses for Sustainable development behaviours.

- Nurse Manager needs to allow head nurses to be oriented that servant leadership responsibilities are more important than entitlement of the position.
- Improve their skills in servant leadership and sustainable development behavior, and give due care to improve their abilities in application.

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