

Impact of Nurse Led Teaching on Knowledge Regarding 5S Workplace Management among Nursing Students

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Abstract:

Workplace management (5S) is an essential quality improvement strategy that enhances efficiency, safety, and organization in healthcare settings. Nursing students, as future healthcare professionals, require adequate knowledge of structured workplace management systems to ensure effective clinical practice. The present study aimed to assess the effectiveness of a nurse led teaching on knowledge regarding workplace management (5S) among nursing students of selected colleges in Navi Mumbai. A quantitative research approach with a pre-experimental one-group pre-test and post-test design was adopted. A total of 70 third and fourth-year BSc nursing students were selected using non-probability purposive sampling. Data were collected using a structured self-administered questionnaire consisting of 25 multiple-choice questions. Validity was established. The reliability of the tool was established using Cronbach's alpha ($\alpha = 0.71$). The mean pre-test knowledge score was 15.32, which increased to 17.01 in the post-test. The calculated paired 't' value (13.48) was statistically significant at $p < 0.05$, indicating that the nurse led teaching was effective. The study concludes that educational interventions on 5S significantly improve knowledge levels among nursing students and should be integrated into nursing curricula to promote quality patient care and organized clinical practice.

Keywords: Workplace Management, 5S Technique, Nurse led teaching, Nursing Students, Knowledge Assessment, Quality Improvement, Healthcare Management.

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Introduction

Quality management in healthcare settings is essential to ensure patient safety, efficiency, and optimal utilization of resources. Hospitals and clinical environments are complex systems where effective workplace organization directly influences service delivery, infection control, and overall patient outcomes. Among various quality improvement strategies, the 5S workplace management system has emerged as a simple yet powerful tool to enhance efficiency and safety¹. The 5S methodology originated in Japan as part of lean management practices and was initially implemented in manufacturing industries. It consists of five principles: **Sort (Seiri)**, **Set in order (Seiton)**, **Shine (Seiso)**, **Standardize (Seiketsu)**, and **Sustain (Shitsuke)**². Over time, 5S has been

successfully adapted in healthcare organizations to improve workplace organization, reduce waste, enhance workflow, and minimize errors³.

In hospital settings, proper workplace management is critical for preventing medication errors, reducing hospital-acquired infections, and ensuring timely patient care. Studies have demonstrated that implementation of 5S in healthcare facilities leads to improved cleanliness, better equipment management, reduced time wastage, and increased staff satisfaction⁴. Furthermore, 5S contributes to building a culture of discipline, accountability, and continuous quality improvement⁵.

Nursing professionals play a central role in maintaining workplace organization within clinical

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units. Their responsibilities include medication administration, patient monitoring, documentation, and coordination with multidisciplinary teams. Inefficient workplace management can increase stress levels, delay interventions, and compromise patient safety. Therefore, knowledge of structured workplace management systems like 5S is essential for nursing students during their training period⁶.

Despite its proven benefits, awareness and formal education regarding 5S principles among nursing students remain limited. Most nursing curricula focus primarily on clinical skills and theoretical knowledge, while structured workplace organization strategies receive less emphasis. Introducing a nurse led teaching on 5S during nursing education may enhance students' understanding of quality management principles and prepare them for professional practice in organized healthcare environments⁷.

Educational interventions, particularly nurse led teaching, have been shown to significantly improve knowledge levels among nursing students across various domains⁸. By systematically introducing the 5S methodology through lectures, demonstrations, and practical examples, students can develop habits that promote safety, efficiency, and professional discipline in clinical settings. Therefore, the present study aims to assess the effectiveness of a nurse led intervention on knowledge regarding workplace management (5S) among nursing students of selected colleges. The findings of the study will help determine whether such educational interventions can enhance knowledge levels and contribute to improved clinical workplace practices in the future.

Research Methodology

This study adopts a quantitative research approach to objectively assess the effectiveness of a nurse led intervention on knowledge regarding workplace management (5S) among nursing students. A pre-experimental one-group pre-test and post-test research design is used, wherein knowledge is assessed before the intervention (K1), followed by the nurse led teaching (X), and reassessed after seven days (K2). This design helps in determining the impact of the planned teaching programme by comparing pre-test and post-test knowledge scores. The study included knowledge regarding workplace management (5S) as the dependent variable and the nurse led teaching as

the independent variable. The setting of the study was Bharati Vidyapeeth College of Nursing, Navi Mumbai. The population comprised all nursing students, with the target population being nursing students of Navi Mumbai and the accessible population being 3rd and 4th year BSc nursing students of the selected college. A sample of 70 students was selected using a non-probability purposive sampling technique. Inclusion criteria included 3rd and 4th year BSc nursing students who were available and willing to participate, while absent or unwilling students were excluded. Data were collected using a structured self-administered questionnaire consisting of 25 multiple-choice questions. Each correct answer was awarded one mark, and knowledge levels were categorized from poor to excellent based on total scores. Content validity was established by seven experts, and reliability testing using Cronbach's alpha yielded a value of 0.71, indicating acceptable reliability. The intervention consisted of a 25–30 minute nurse led teaching session covering introduction, goals, structure, steps, advantages, and disadvantages of 5S workplace management.

Results

Section – I: Analysis of data related to demographic variables of study

In this section the frequencies and percentage analysis which will be used to describe demographic characters of nursing students.

n = 70

Sr. No	Demographic variable	Category	Frequency	Percentage
1.	Age	18 – 20 years	29	41.6 %
		21 – 23 years	38	54.2 %
		24 – 25 years	3	4.2 %
2.	Gender	Male	28	40 %
		Female	42	60 %
3.	Previous knowledge	Yes	28	40 %
		No	42	60 %

Table 1: Distribution of demographic variables

The data represented above show that the majority of 38 samples (54.2%) are in the age group of 18 -20 years, 29 (41.6%) samples are the age group of 21-23

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years. 3 (4.2%) are in the age group of 24-25 years. The data presented in above table indicate that maximum (54.2%) of students are in age group of 21-23 years. The majority of sample that are 60 % of students are female and 40 % of students are male.

Section - II (A): Assessment of pre-interventional knowledge score regarding work place management among nursing students

n=70

Sr. No	Knowledge level	Pre test	
		Frequency	Percentage
1.	Poor	35	50 %
2.	Average	22	31.43 %
3.	Good	7	10 %
4.	Very good	4	5.71 %
5.	Excellent	2	2.86 %

Table 2: Pre- interventional knowledge level

Regarding the overall knowledge in the pre-test among the samples, 50% of nursing students had poor knowledge, 31.43% had average knowledge, 10% had good knowledge, 5.71% had very good knowledge, and 2.86% had excellent knowledge regarding workplace management.

SECTION II (B) Assessment of post - interventional knowledge score regarding work place management among nursing students

n = 70

Sr. No	Knowledge Level	Post test	
		Frequency	Percentage
1.	Poor	2	2.86%
2.	Average	4	5.71%
3.	Good	10	14.29%
4.	Very good	36	51.43%
5.	Excellent	18	25.71%

Table 3: Post interventional knowledge level

Regarding the overall knowledge in the post-test among the samples, 2.86% of nursing students had

poor knowledge, 5.71% had average knowledge, 14.29% had good knowledge, 51.43% had very good knowledge, and 25.71% had excellent knowledge regarding workplace management

Section – III: Comparison between pre-interventional and post interventional knowledge score.

This section includes the comparison between pre-test and post-test score, will describe knowledge regarding work place management before and after nurse led intervention.

n = 70

Group	Mean	S.D	Mean difference	't' value	p Value
Pre test	15.32	4.12	6.08	10.18	0.0001
Post test	21.40	2.81			

Table 4: Comparison between pre-interventional and post interventional knowledge score

The data presented in the above table shows that the mean pre-test knowledge score was 15.32 with a standard deviation of 4.123, whereas the mean post-test knowledge score increased to 21.40 with a standard deviation of 2.819. The mean difference between the pre-test and post-test scores was 6.08. A paired 't' test was used to determine the effectiveness of the intervention. The calculated t value (10.18) is higher than the tabulated value at the selected level of significance. Since the p value is 0.0001 ($p < 0.05$), the difference is statistically significant. This indicates that the Nurse led intervention was effective in improving the knowledge scores of nursing students.

Section- IV: Association between pre-interventional knowledge score and sociodemographic variables

n = 70

Demographic Variable S	Category	Poor	Average	Good	Very Good	Excellent	Chi Square Value	p-Value	Significant
Age	18-20	0	4	8	16	1	7.30	0.5 ~	NS
	21-23	2	2	14	17	3			

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		24-26	0	1	0	2	0			
Gender	Male	2	2	9	14	1		3.76	0.43	NS
	Female	0	5	13	21	3				
Previous Knowledge	Yes	6	13	7	2	0		1.73	0.62	NS
	No	1	2	8	1	0				

Table 5: Association between pre-interventional knowledge score and sociodemographic variables

The above table represents association between pre-interventional knowledge score and socio-demographic variables. Chi-square analysis is done to examine the association between pretest knowledge and socioeconomic variables. Since the p value is more than 0.05, there is no significant association between pre-test knowledge and selected demographic variables.

Discussion

The present study aimed to assess the effectiveness of a nurse led intervention on knowledge regarding workplace management (5S) among nursing students of selected colleges in Navi Mumbai. The findings revealed a statistically significant improvement in knowledge scores following the intervention, indicating the effectiveness of the nurse led teaching. The results of the present study are consistent with the findings of Hosseini and Dalvandi (2013), who evaluated the effect of the 5S workplace organizing technique on nurses' productivity in operating rooms of Isfahan hospitals⁸. Their study demonstrated that implementation of the 5S technique led to a 6% increase in productivity, concluding that 5S improves efficiency and organization in healthcare settings. While their study focused on practicing nurses and productivity outcomes, the present study concentrated on knowledge improvement among nursing students. Both studies support the importance of structured exposure to 5S principles in healthcare environments. In the present study, the pre-test findings indicated that 50% of the nursing students had poor knowledge, 31.43% had average knowledge, 10% had good knowledge, 5.71% had very good knowledge, and 2.86% had excellent knowledge regarding workplace management. After the implementation of the nurse led teaching, a considerable improvement in

knowledge levels was observed. In the post-test, only 2.86% of students had poor knowledge, 5.71% had average knowledge, 14.29% had good knowledge, 51.43% had very good knowledge, and 25.71% had excellent knowledge regarding workplace management. The mean pre-test knowledge score was 15.32 (SD = 4.123), which increased to 21.40 (SD = 2.819) in the post-test. The mean difference between pre-test and post-test scores was 6.08. A paired t-test was applied to determine the effectiveness of the nurse led teaching. The calculated t value (10.18) was found to be higher than the tabulated value, and the p value was 0.0001 ($p < 0.05$), indicating that the difference was statistically significant.

These findings demonstrate that the nurse led teaching was effective in improving the knowledge of nursing students regarding workplace management. These findings are supported by previous literature suggesting that nurse led teaching significantly enhance knowledge acquisition among nursing students⁹. Polit and Beck emphasize that well-planned educational interventions improve cognitive learning outcomes when pre-test and post-test designs are used to measure effectiveness¹⁰.

The absence of significant association between demographic variables (age, gender, and previous knowledge) and pre-test knowledge scores suggests that baseline knowledge levels were independent of these factors. Similar findings have been reported in educational intervention studies where demographic variables showed minimal influence on knowledge improvement when nurse led teaching was provided¹¹. Workplace management (5S) has been widely recognized as an effective quality improvement strategy in healthcare settings (5). It enhances organization, reduces waste, improves safety, and promotes systematic work culture. Early exposure of nursing students to 5S principles during their training period may foster disciplined work habits and improve future professional performance.

Overall, the present study findings reinforce the importance of integrating nurse led intervention on workplace management into nursing education to promote quality care, efficiency, and safety in healthcare institutions.

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Conclusion

The study concludes that the Nurse led intervention was effective in improving knowledge regarding workplace management (5S) among nursing students. There was a noticeable increase in post-test knowledge scores compared to pre-test scores. The findings highlight the need to incorporate workplace management concepts into nursing education to prepare students for organized and efficient clinical practice.

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