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"A Quasi-Experimental Study To Assess The Knowledge And Attitude Regarding Effectiveness Of Organic Cotton Sanitary Pad Over Regular Sanitary Pad Among Nursing Students In Selected Nursing College Of Metropolitan City"

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Abstract:
Background: Menstrual hygiene is a crucial aspect of women's health, affecting their overall well-being, confidence, and daily activities. The selection of an appropriate menstrual hygiene product plays a vital role in ensuring comfort, safety, and sustainability. Organic cotton sanitary pads are gaining popularity as a safer alternative to conventional sanitary pads due to their biodegradable nature and the absence of harmful chemicals.
Aim and Objectives: The study aimed to assess the effectiveness of organic cotton sanitary pad as compared to regular sanitary pad during menstruation. The objectives of the study were to assess the effectiveness of organic cotton sanitary pad over regular sanitary pad and to identify the association between the use of organic cotton sanitary pads over regular sanitary pads among nursing students with selected demographic variables.
Materials and Methods: A quasi-experimental design was used with a quantitative approach. The study included 30 samples,15 in Experimental and 15 in Control group. Data Collection tools included questionnaire to assess the knowledge and Likert Scale to assess the attitude regarding organic sanitary pad in experimental group and questionnaire and Opinionnaire in control group. Results: Paired t-test was applied for the effectiveness of organic cotton sanitary pad over regular sanitary pad. Average knowledge score in pre test was 1.8 which increased to 4.7 in post test. Two sample t-test was applied for the comparison of knowledge gain among nursing students in experimental and control group. Average knowledge gain in experimental group was 2.9 which was 0 in control group. In experimental group, in pre test 40% of the nursing students had negative attitude and 60%of them had positive attitude. In post test all of them had positive attitude. This indicates the attitude among nursing students improved remarkably in experimental group. Fisher's exact test was applied for association between the use of organic cotton sanitary pads over regular sanitary pads among nursing students with selected demographic variables. None of the demographic variables were found to have significant association with the knowledge among nursing students regarding Conclusion: The findings indicated that the nursing students found organic sanitary pad more effective and cheap and bio degradable as compared to regular sanitary pad.

Keywords: Assess, Effectiveness, Organic Sanitary Pad, Regular Sanitary Pad, Menstrual Hygiene.

Introduction

Menstrual hygiene is a crucial aspect of women's health, affecting their overall well-being, confidence, and daily activities. The selection of an appropriate menstrual hygiene product plays a vital role in ensuring comfort, safety, and sustainability (Das et al.,2021). Traditionally, women have relied on regular sanitary pads, which are widely available and convenient. However, concerns about their potential health risks and environmental impact have led to increased interest in organic cotton sanitary pads.[1]
Unlike regular pads, which contain synthetic materials, fragrances, and absorbents that may cause skin irritation or allergies, organic cotton pads are free from such chemicals and are considered skin-friendly.[2]

Review of Literature

Kim J et al (2022) conducted a comparative analysis of the health and environmental effects of organic sanitary pads versus conventional pads and menstrual cups. Using life-cycle assessment (LCA) methodology, the study evaluates environmental impact factors such as carbon footprint, water use, and non-degradability. Simultaneously, a survey of 150 menstruating individuals was conducted to assess health impacts like allergic reactions, irritation, and overall user satisfaction. Results indicate that organic pads had a lower environmental impact and were associated with a reduced frequency of skin allergies and discomfort. The study supported the adoption of organic menstrual products as a more sustainable and health-conscious option.[3]
In a school-based observational study conducted by Latha et al(2023),120 adolescent girls aged 13–17 were provided with organic sanitary pads over a three-month period to assess comfort, safety, and hygiene outcomes. Data were

collected through structured questionnaires and interviews after each cycle. Results showed that 82% of the participants preferred organic pads over conventional ones, citing better breathability, softer texture, and reduced odor. There was a marked decrease in self-reported rashes and itching. The study concludes that organic pads are a promising menstrual hygiene product for adolescents, providing improved user experience and fewer dermatological complaints.[4]

Need for the Study

Regular sanitary pads are commonly made from synthetic materials, including plastics, artificial fragrances, and chemical-based absorbents. Studies have suggested that prolonged use of such products may pose risks such as skin irritation and allergic reactions due to chemical additives and Potential hormonal disruptions.

Organic cotton sanitary pads are gaining popularity due to their multiple advantages, including hypoallergenic properties, chemical-free composition, better breathability and eco-friendliness. Regular sanitary pads contribute significantly to non-biodegradable waste, taking hundreds of years to decompose. Organic cotton pads, being biodegradable and environmentally sustainable, present an eco-friendly solution.

Menstrual hygiene is a crucial aspect of women's health, and the choice of sanitary products significantly impacts both personal well-being and environmental sustainability. The increasing awareness of eco-friendly and health-conscious alternatives has led to the emergence of organic cotton sanitary pads as a viable option over regular sanitary pads.[5]

Objectives

1. To assess the effectiveness of organic cotton sanitary pad over regular sanitary pad
2. To identify the association between the use of organic cotton sanitary pads over regular sanitary pads among nursing students with selected demographic variables.

Hypotheses

1. H0 (null hypothesis): There will be no significant effect of organic cotton sanitary pad over regular sanitary pad among nursing students.
2. H1 (research hypothesis): There will be significant effect of organic cotton sanitary pad over regular sanitary pad among nursing students.

Materials and Methods

Research Approach : Quantitative research approach
Research Design : Quasi-Experimental research design
Setting of the study: Nursing college in selected area of metropolitan city.
Population : Nursing Students
Sample Size : 30(15 in experimental group and 15 in control group)
Sampling technique: Non-probability purposive sampling technique
Tool for data collection:

Section A: Demographic data
Section B: Knowledge regarding organic sanitary pad.
Section C: Attitude scale to assess use of organic sanitary pad.
Intervention: In experimental group, organic sanitary pads were provided for the nursing students who were using regular sanitary pads during their menses whereas control group was instructed to use regular sanitary pad during their menses.

Validity and Reliability:

The tool was validated by subject experts in nursing and public health. Pilot testing ensured reliability.

Ethical Considerations:

Ethical approval was obtained from the institutional review board. Written consent was obtained from participants.

Results:

Table 1: Distribution of Participants by Demographic Variables

Demographic Variable	Category	Experimental Group		Control Group	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Age (in years)	18-20	9	60%	1	6.67%
	20-24	6	40%	14	93.33%
Religion	Hindu	8	53.33%	14	93.33%
	Muslim	1	6.67%	1	6.67%
	Christian	1	6.67%	0	0%
	Other	5	33.33%	0	0%
Year of Course	1st year BSc nursing	0	0%	0	0%
	2nd year BSc nursing	15	100%	0	0%

	3rd year BSc nursing	0	0%	15	100%
Age of Menarche	10-12 year	3	20.00%	1	6.67%
	12-14 year	12	80%	14	93.33%

Table 2: Effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan
N=15, 15

Knowledge	Experimental				Control			
	Pre test		Post test		Pre test		Post test	
	Freq	%	Freq	%	Freq	%	Freq	%
Poor	6	40.0%	0	0.0%	7	46.7%	7	46.7%
Average	9	60.0%	1	6.7%	8	53.3%	8	53.3%
Good	0	0.0%	14	93.3%	0	0.0%	0	0.0%

In experimental group, in pre test 40% of the nursing students had poor knowledge and 60% of them had average knowledge. In posttest 6.7% of them had average knowledge and 93.3% of them had good knowledge. In control group, in pre test and posttest, 46.7% of them had poor knowledge and 53.3% of them had average knowledge.

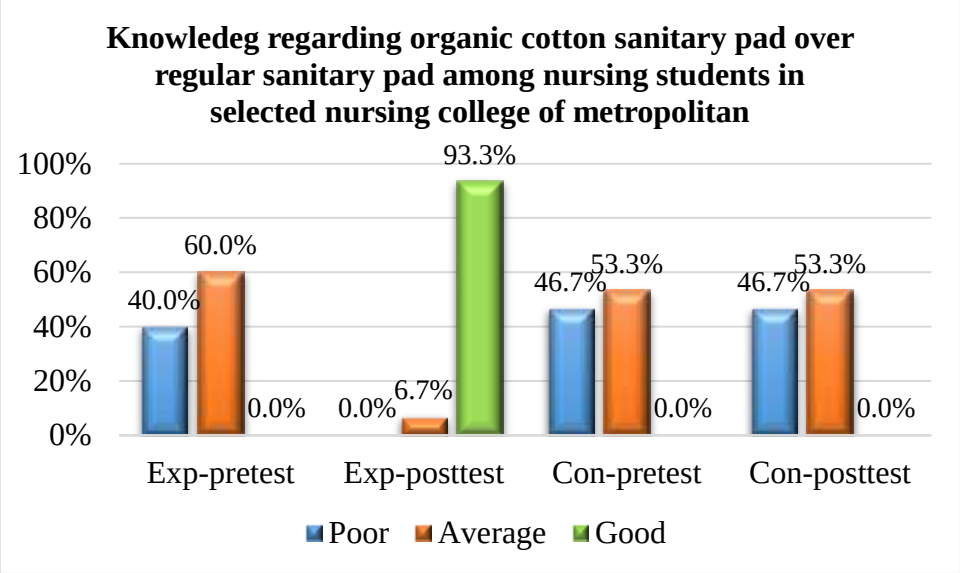

Fig No.1. Showing effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan

Table 3: Paired t-test for the effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan in experimental group
N=15, 15

	Mean	SD	T	df	p-value
Pre test	1.8	0.8	11.2	14	0.000
Post test	4.7	0.6			

Researcher applied paired t-test for the effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan in experimental group. Average knowledge score in pre test was 1.8 which increased to 4.7 in posttest. T-value for this test was 11.2 with 14 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. Average knowledge score in posttest was significantly higher than that in pre test. It is evident that the knowledge among nursing students improved significantly.

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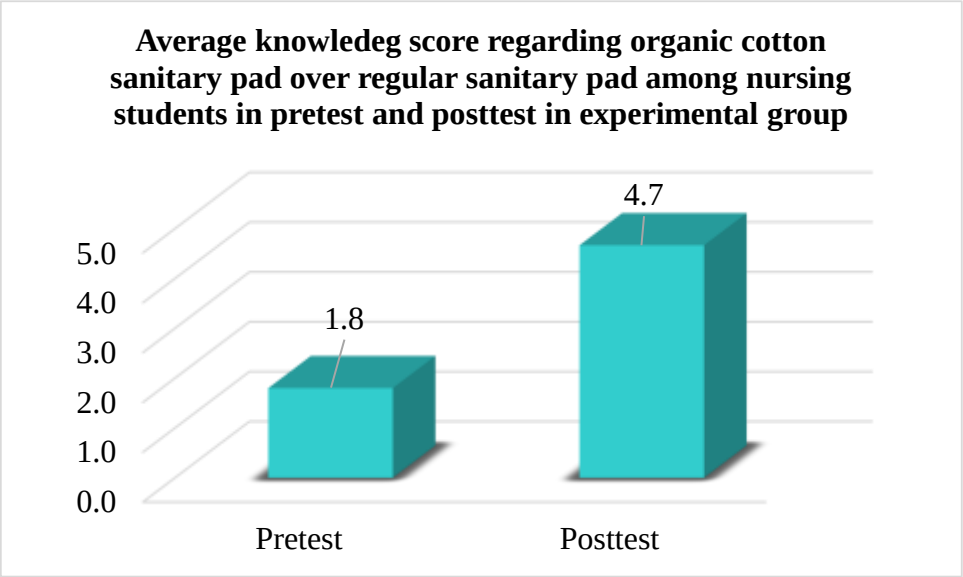

Fig No.2. Showing Paired t-test for the effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan in experimental group

Table 4: Two sample t-test for the comparison of knowledge gain among nursing students in experimental and control group
N=15, 15

Group	Mean	SD	T	df	p-value
Experimental	2.9	1.0	9.4	28	0.000
Control	0.0	0.7			

Researcher applied two sample t-test for the comparison of knowledge gain among nursing students in experimental and control group. Average knowledge gain in experimental group was 2.9 which was 0 in control group. T-value for this test was 9.4 with 28 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. Average knowledge gain in experimental group was significantly higher than that in control group. It is evident that the knowledge among nursing students in experimental group improved significantly.

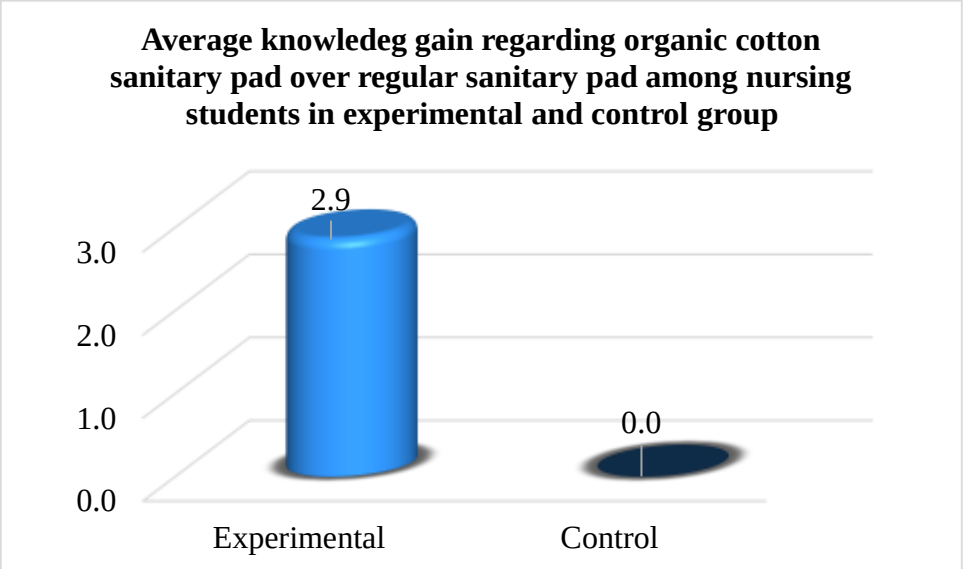

Fig.No.3 Showing Two sample t-test for the comparison of knowledge gain among nursing students in experimental and control group

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Table 5: Effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan

N=15, 15

Attitude	Experimental			
	Pre test		Post test	
	Freq	%	Freq	%
Negative	6	40.0%	0	0.0%
Positive	9	60.0%	15	100.0%

In experimental group, in pre test 40% of the nursing students had negative attitude and 60% of them had positive attitude. In posttest all of them had positive attitude. This indicates the attitude among nursing students improved remarkably in experimental group.

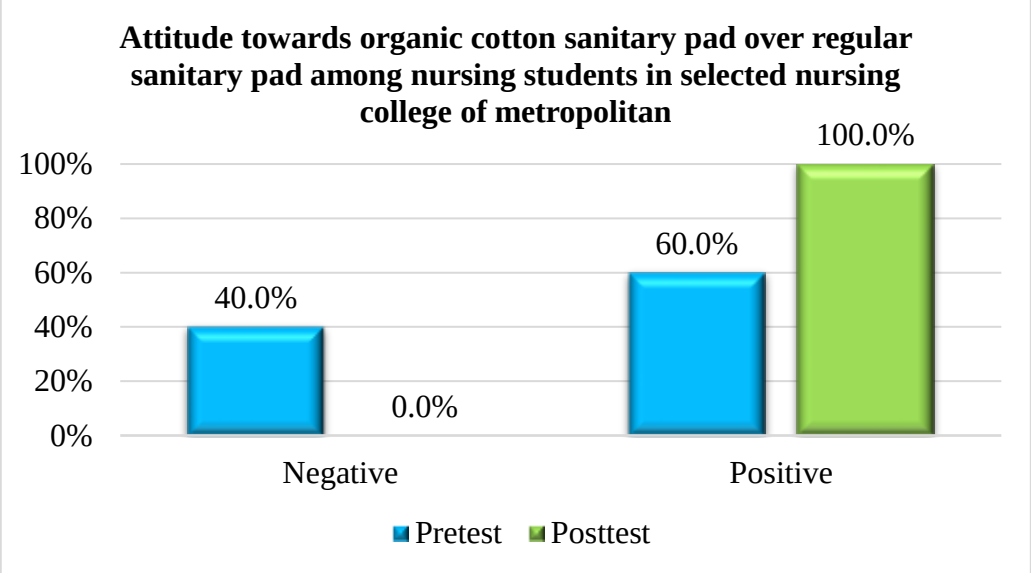

Fig.No.4. Showing effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan

Table 6: Paired t-test for the effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan in experimental group

N=15

	Mean	SD	T	df	p-value
Pre test	26.2	8.0	9.9	14	0.000
Post test	47.8	2.1			

Researcher applied paired t-test for the effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan in experimental group. Average attitude score in pre test was 26.2 which increased to 47.8 in posttest. T-value for this test was 9.9 with 14 degrees of freedom. Corresponding p-value was small (less than 0.05), the null hypothesis is rejected. Average attitude score in post test was significantly higher than that in pre test. It is evident that the attitude among nursing students improved significantly.

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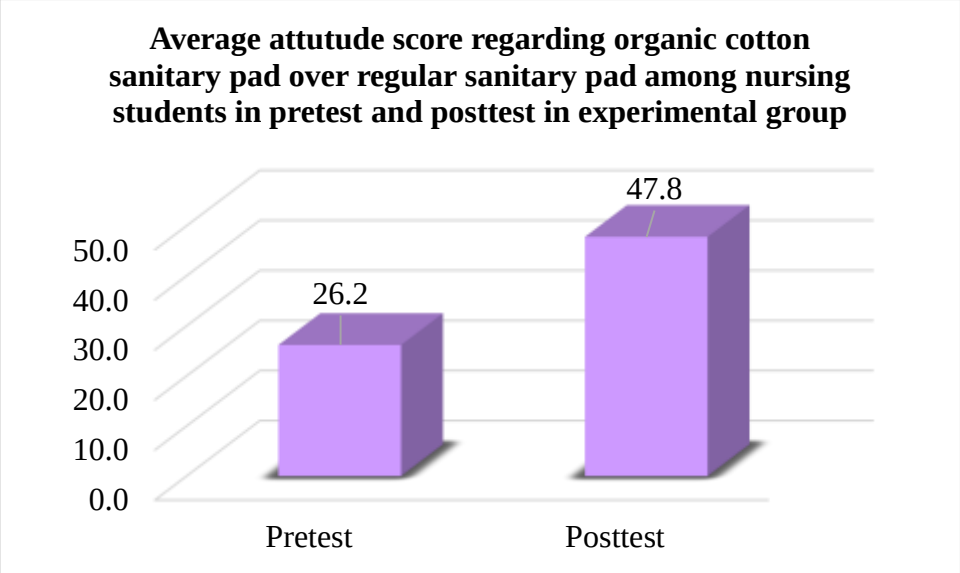

Fig.No.5.Showing Paired t-test for the effectiveness of organic cotton sanitary pad over regular sanitary pad among nursing students in selected nursing college of metropolitan in experimental group

Table 7: Fisher's exact test for the association of knowledge regarding organic cotton sanitary pad with the demographic variables N=30

Demographic variable		**Knowledge**		**p-value**
		Average	**Poor**	
Age	18-20 years	6	4	1.000
	20-24 years	11	9	
Religion	Hindu	12	10	0.608
	Muslim	2	0	
	Christian	0	1	
	Other	3	2	
Year of course	Second year BSc nursing	9	6	1.000
	Third year BSc nursing	8	7	
Age of menarche	10 to 12	1	3	0.290
	12 to 14	16	10	
Whether you have used any previous organic pad	Yes	10	7	1.000
	No	7	6	

Since all the p-values were large (greater than 0.05), none of the demographic variables were found to have significant association with the knowledge among nursing students regarding organic cotton sanitary pad.

Table 8: Fisher's exact test for the association of attitude toward organic cotton sanitary pad with the demographic variables
N=15

Demographic variable		**Attitude**		**p-value**
		Negative	**Positive**	
Age	18-20 years	4	5	1.000
	20-24 years	2	4	
Religion	Hindu	3	5	0.385
	Muslim	1	0	
	Christian	1	0	
	Other	1	4	
Age of menarche	10 to 12	1	2	1.000
	12 to 14	5	7	

Since all the p-values were large (greater than 0.05), none of the demographic variables were found to have significant association with attitude knowledge among nursing students towards organic cotton sanitary pad.

Discussion

The study assessed the effectiveness of organic cotton sanitary pads in improving knowledge and attitude among nursing students. In the experimental group, a significant improvement in knowledge was observed: pre test showed 40% had poor knowledge and 60% had average knowledge, while post test showed 93.3% had good knowledge. In contrast, the control group showed no change from pre test to post test. A paired t-test in the experimental group revealed a significant increase in knowledge scores (from 1.8 to 4.7, t=11.2, p<0.05), indicating the intervention was effective. A two-sample t-test comparing both groups showed significantly higher knowledge gain in the experimental group (mean gain = 2.9 vs. 0, t=9.4, p<0.05).Similarly, attitude improved notably in the experimental group. Initially, 40% had a negative attitude; post test results showed 100% with a positive attitude. The paired t-test also confirmed significant improvement in attitude scores (from 26.2 to 47.8, t=9.9, p<0.05).No significant associations were found between demographic variables and either knowledge or attitude (p>0.05), suggesting improvements were likely due to the intervention alone.

Conclusion

The study concludes that the use of organic cotton sanitary pads significantly improved both knowledge and attitude among nursing students in the experimental group. Statistical analysis confirmed that the intervention was effective, with no influence from demographic factors.

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