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A quasi experimental study to assess the effectiveness of structured teaching plan on cervical cancer among women in selected area, Ludhiana, Punjab

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Abstract

Introduction: Cervical cancer is one of the most common cancer types among women in developing countries. Women's behavior in the early detection of the disease is influenced by various factors.

Material and Methods: The study was carried out in selected area. Total 60 women in age group of 25-50 years, 30 for experimental group from village Mundia and 30 for control group from village Bhattia Bet study was done by using nonprobability convenience sampling technique.

Results: Total 60 women are included in the study. The study assessed the demographic variables of women in the control and experimental groups. In terms of age, most women in the control group were 31-40 years, while majority were in the experimental group 25-30 years. Regarding education, most women in both groups had completed 10th grade. Occupation wise, most women were housewives & small percentage in private or government jobs. Most women in both groups were married, with family incomes primarily between ₹5000-₹10,000. A few women had a family history of cancer. The majority of women in the control group received information from mass media, while in the experimental group, it was from health workers. Only one woman in the experimental group had a previous Pap smear test. The comparison of pre and post-test mean knowledge scores on cervical cancer showed that in the control group, the pre and post-test scores (9.53, 12.23) were statistically non-significant. However, in the experimental group, the pre and post-test scores (9.37, 31.47) showed a highly significant difference at $p < 0.05$. Additionally, there was no significant difference between the pre-test mean knowledge scores of the control and experimental groups (9.53 vs 9.37), but the post-test scores (12.23 vs 31.47) were significantly different at $p < 0.05$. Therefore, the structured teaching program was effective in improving women's knowledge about cervical cancer, leading to the acceptance of the research hypothesis (H1).

Conclusion: The study assessed the knowledge of women about cervical cancer before and after implementing a structured teaching plan, with participants divided into experimental and control groups.

Keywords: Cervical cancer, quasi experimental, human Papillomavirus, effectiveness

Introduction

Cancer is the most dreaded disease that refers to all malignant tumors caused by the abnormal growth of a body cell or a group of cells. It is today the second largest killer in the world, next to heart ailments. Cancer can spread very rapidly, eventually prove fatal, if not detected early & treated properly. Cancer has emerged as an important health problem in India, more than 1.5 million people suffer from cancer. The number of deaths due to cancer by year 2000 was eight million^[1].

Cancer is an oncogene regulates cell growth in a positive fashion. Oncogenes include transforming genes of viruses and normal cellular genes that are activated by mutations to promote cell growth to a partly malignant behavior^[2].

Cervical cancer is second most common cancer affecting women worldwide and is a significant cause of morbidity and mortality, particularly in the developing countries, where more than 288,000 women dies of this disease every year. Rate of cervical cancer is unacceptably high. Most cervical cancers begin in the cells lining the cervix. These cells do not suddenly change into cancer. Instead, the normal cells of the cervix first gradually develop pre-cancerous changes that turn into cancer.

Doctors are used several terms to describe these pre-cancerous changes, including cervical intraepithelial neoplasia, squamous intraepithelial lesion, and dysplasia. Most cervical cancers are squamous cell carcinomas, arising in the squamous epithelial cells that line the cervix. Adenocarcinoma, arising in glandular epithelial cells is the second most common type [3].

Cervical cancer has become challenging and life threatening problem in developed and developing countries. This may be due to increasing number of carcinogens, poor life style, & unskilled diagnoses. The highest rates are in Latin America, Africa and South East Asia including India, where risk of cervical cancer is highest [4].

Need of Study

Most women who develop cervical cancer tend to have one or more identifiable factors that increase the risk for the disease. It is uncommon but not impossible for a woman to develop cervical cancer without any of these risk factors. Some risk factors can be changed like smoking and diet where as others cannot be changed such as age and race [5].

Cervical cancer, in women, is the second most common cancer worldwide, next to breast cancer. In India, with a population of 365.71 million have women with age group of 15 years and above who stand at the risk of developing cervical cancer.

A World Health Organization study reveals that every year 1, 32,082 women are diagnosed with this particular kind of cancer and 74,118 die from the disease. The growing risk of cervical cancer in women in India aged 64 years is 2.4% compared to 1.3% in the world. It is the commonest cancer in India and all sexually active women are at a risk of contracting this disease. But it's mostly seen in woman aged between 45 to 55 years. If detected at a pre-cancerous stage (when the cells are not normal, but are not yet cancerous), this cancer is 100 per cent curable [6].

There is a critical need for studies focused on raising awareness about cervical cancer among women due to the high prevalence of preventable cases and late-stage diagnoses.

Cervical cancer is one of the leading causes of cancer-related deaths in women worldwide, yet it is highly preventable with early detection through Pap smears and the HPV vaccine. Many women lack knowledge about the disease, its symptoms, and the available preventive measures. By conducting awareness studies, we can bridge the knowledge gap, encourage regular screenings, promote vaccination, and ultimately reduce the incidence and mortality rates associated with cervical cancer.

Aim of Study

The aim of this study is to raise awareness among women about cervical cancer, emphasizing its prevention, early detection, and treatment options. The study seeks to educate women on the importance of regular screenings, such as Pap smears, and the role of the HPV vaccine in reducing risk. By increasing awareness, the study hopes to empower women to take proactive steps in safeguarding their health. Ultimately, the goal is to reduce the incidence and mortality rates of cervical cancer through informed decision-making.

Methodology

The main objective of study:

1. To assess the pre-test knowledge on cervical cancer among women in control and experimental group.
2. To assess the post-test knowledge on cervical cancer among women in control and experimental group.
3. To compare the pre-test and post-test knowledge on cervical cancer among women in control and experimental group.
4. To find out the relationship of post-test knowledge with selected variables such as age, educational status, occupation, marital status, family history of cancer, income, source of information in control and experimental group.

It is a quasi-experimental (Non- randomized control group design) pre-test and post-test design are used. From the age group of 25-50 total 60 women included in the study, in which 30 for experimental group from village Mundia and 30 for control group from village Bhattia Bet. Study done by using the nonprobability convenience sampling technique.

Inclusion and exclusion criteria

Inclusion criteria

1. Women between age group of 25-50 years.
2. Women who know Punjabi or English or both.
3. Women who are willing to participate in the study.

Exclusion criteria

1. Those who are already diagnosed or treated for cancer of cervix.
2. Those who are not available during study.
3. Women who do not know English or Punjabi.

The reliability of structured questionnaire was done by split half method and was calculated by Karl Pearson's coefficient of co-relation and Spearman's Brown Prophecy formula.

Pilot study was conducted during the month of February 2013 to ensure the reliability of tool and feasibility of the study. The study was conducted in the rural communities of Halwara and Narpura, located in tehsil Raikot, district Ludhiana. Verbal consent was obtained from participants after explaining the study's purpose. Six women, aged 25-50 years and meeting the inclusion criteria, were selected using a convenient sampling technique. Three participants from Halwara formed the experimental group, while three from Narpura comprised the control group. A pre-test was conducted for both groups using a structured questionnaire, which each participant completed in 30-35 minutes. The experimental group received structured education on cervical cancer, and a post-test was administered for both groups five days later to evaluate the effectiveness of the teaching plan. Confidentiality was ensured throughout, and the study was found to be feasible and practical for implementation.

Result

Section-A

Table 1: Frequency and Percentage Distribution of sample characteristics

Characteristics	Control Group(30)		Experimental group(30)	
	n	%	n	%
Age (Years)				
25-30	10	33.33	19	63.33
31-40	11	36.67	09	30.00
41-45	06	20.00	01	3.33
46-50	03	10.00	01	3.33
Education				
≤10 th	18	60.00	15	50.00
Senior Secondary	09	30.00	08	26.67
Graduate	03	10.00	07	23.33
≥Post-graduation	0	0.00	0	0.00
Occupation				
Housewife	24	80.00	24	80.00
Govt. job	0	0.00	03	10.00
Business	0	0.00	0	0.00
Private Job	06	20.00	03	10.00
Marital status				
Married	22ss	73.33	23	76.67
Unmarried	06	20.00	06	20.00
Widow	02	6.67	01	3.33
Divorced	—	—	—	—
Family Income (Rs. Per month)				
≤5000	20	66.67	16	53.33
5001-10000	06	20.00	11	36.67
10001-20000	02	6.67	02	6.67
>20000	02	6.67	01	3.33
Family history of cancer				
Yes	02	6.67	01	3.33
No	28	93.33	29	96.67
Source of Information				
Mass Media	13	43.33	10	33.33
Relatives/Friends	05	16.67	05	16.67
Health Worker	12	40.00	15	50.00
Previous History of Pap Smear				
Yes	0	0.00	01	3.33
No	30	100.00	29	96.67

Table 1 depicts the frequency and percentage distribution of women based on demographic variables such as age, education, occupation, marital status, family income, family history of cancer, source of information and previous history of Pap smear.

According to age, in control group, most of the women i.e. 11(36.67%) belonged to age group 31-40 years, followed by 10(33.33%) in the age group 25-30 years. 6 women (20%) belonged to age group 41-45 years and least number of women i.e. 3(10%) were from age group 46-50 years. While in the experimental group, most of the women 19(63.33%) belonged to age group 25-30 years, followed by 9 (30%) from age group 31-40 years. Only one woman (3.33%) belonged to age group 41-45 years as well as in the age group of 46-50 years.

With regard to education, in control group, most of the women i.e. 18(60%) were 10th passed, followed by 9(30%) women who were educated up to senior secondary level and 3(10%) were graduate. Also in the experimental group, most of the women i.e. 15(50%) were 10th passed, followed by 8(26.67%) up to 10+2 standard and 7(23.33%) were graduate. Nobody was post-graduate in both groups.

Based on occupation most of the women i.e. 24(80%) were housewife, both in control and experimental group. In the control group 6(20%) were doing private job. While in experimental group, 3(10%) were doing government job and 3(10%) were doing private job.

As per marital status, most of the women, both in control group i.e. 22(73.33%) and experimental group i.e. 23(76.67%) were married, followed by 6(20%) women were unmarried in both groups. There were 2(6.67%) widows in control group and 1(3.33%) was in experimental group.

With regard to family income, both in control and experimental group, most of the women i.e. 20(66.67%) and 16(53.33) were having family income of 5000 respectively. In the control group 6(20%) women were having family income of 5001-10000, followed by 2(6.67%) having 10,001-20,000 and 2(6.67) with income of more than 20,000. While in experimental group, 11(36.67%) women were having family income of 5001-10,000, followed by 2(6.67%) having 10,001-20,000. There was only 1(3.33%) woman in experimental group with family income of more than 20,000.

With regard to family history of cancer, in control group, only 2(6.67%) women were having history of cancer in their family. While only 1(3.33%) woman in experimental group was having family history of cancer.

With regard to source of information, in control group, a higher percentage of women i.e. 13(43.33%) got information through mass media, followed by 12(40%) who got information from health workers and only 5(16.67%) women got information from relative/friend. Whereas in experimental group, most of the women i.e.15 (50%) got information from health workers, followed by 10(33.33%)

women who got information through mass media and least i.e. 5(16.67%) got information from relative/friends. As per previous history of pap smear test, no one had Pap smear test in past in control group while in experimental group only 1(3.33%) woman had previous history of Pap smear test.

Section B

Objective 1: To assess the pre-test knowledge on cervical cancer among women in control and experimental group.

Objective 2: To assess the post-test knowledge on cervical cancer among women in control and experimental group.

Table-2: Frequency and Percentage distribution of level of knowledge score of women N=60

Level of Knowledge (%)	Score	Knowledge Score							
		Control Group (30)				Experimental Group (30)			
		Pre-Test		Post-test		Pre-Test		Post-test	
		n	%	n	%	n	%	n	%
Excellent (≥81%)	33-40	-	-	-	-	-	-	14	46.6
Good (61-80%)	25-32	-	-	01	3.33	-	-	13	43.3
Average (41-60%)	17-24	01	3.33	03	10	02	6.66	03	10
Poor (≤40%)	≤16	29	96.6	26	86.6	28	93.3	-	-
Maximum Score = 40									
Minimum Score = 0									

Table 2 and Figure 3 reveal the overall level of pre-test and post-test knowledge of women regarding cervical cancer in experimental and control group. In both control and experimental group, majority of the women i.e.29 (96.6%) and 28(93.3%) respectively had poor level of knowledge in pre-test. In control group only 1(3.33%) had average level of knowledge in pre-test while in experimental group 2(6.66%) were having average level of knowledge. In pre-test none of the group was having good or excellent level of knowledge.

In the post-test, in control group maximum number of women 26(86.6%) had poor level of knowledge, followed by 3(10%) had average level of knowledge and only 1(3.33%) had good level of knowledge. While in the experimental group, majority of the women i.e. 14(46.6%) had excellent level of knowledge, followed by 13(43.3%) had good level of knowledge and 3(10%) had average level of knowledge. None of the woman had poor level of knowledge in experimental group in post-test. Thus it was concluded that structured teaching plan on cervical cancer had a definite impact in enhancing the knowledge of women regarding cervical cancer in experimental group.

In the post-test, in control group maximum number of

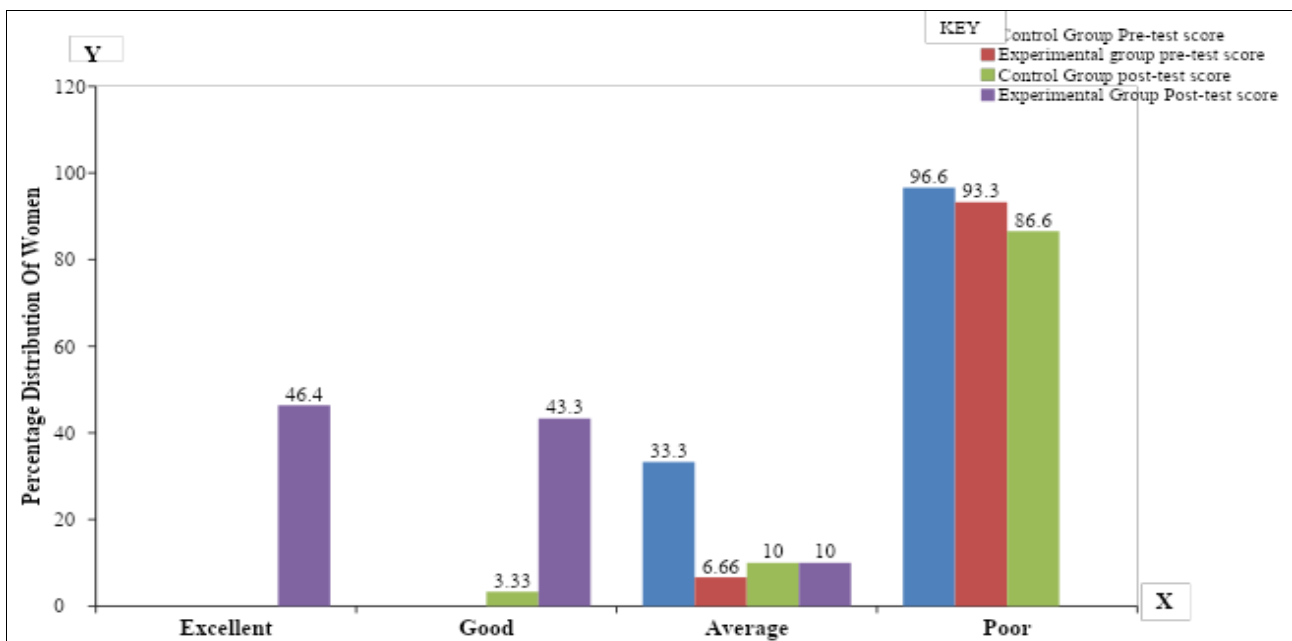


Fig 1: Percentage Distribution of Pre and post knowledge score on cervical cancer among women in control and experimental group

Then Comparison of pre and post-test mean knowledge score on cervical cancer among women in control and experimental group. Pre and post-test mean knowledge score of control group (9.53, 12.23) was statistically non-significant, whereas the pre and post-test mean knowledge score of experimental group (9.37, 31.47) was highly significant at $p < 0.05$. This table also reveals that there was no significant difference between pre-test mean knowledge score of control and experimental group (9.53,9.37) whereas post-test mean knowledge score of control and experimental

group (12.23,31.47) was highly significant at $p < 0.05$ level. Hence the research hypothesis H1 was accepted. Thus it was concluded that structured teaching program had definite impact on raising the knowledge women regarding cervical cancer.

After studying the relationship between post-test knowledge and factors like age, education, occupation, family history of cancer, income, and sources of information in the control and experimental groups it is concluded that hypothesis H2 was rejected and there is no impact on demographic variable

of women regarding cervical cancer.

Discussion

The first objective of the study was to evaluate the pre-test knowledge about cervical cancer among women in both the control and experimental groups. The results revealed that a majority of women in both groups had a poor understanding of cervical cancer, with 96.6% in the control group and 93.3% in the experimental group showing low levels of knowledge. Notably, none of the women in either group had an excellent or good level of knowledge prior to the intervention. These findings are consistent with the study by Wright KO, Kuyinu YA, and Faduyile FA (2010) [7], which also found that women's knowledge of cervical cancer was extremely limited, with only a small number of participants in both groups having heard of the disease.

The second objective of the study was to evaluate the post-test knowledge of cervical cancer among women in both the control and experimental groups. In the control group, the majority of women (86.6%) continued to have a poor level of knowledge after the intervention. In contrast, the experimental group showed significant improvement, with the majority (46.6%) achieving an excellent level of knowledge. In the control group, only a small proportion (3.33%) had a good level of knowledge, and none had excellent knowledge. Conversely, in the experimental group, no participants had poor knowledge, and only a small percentage (10%) had an average level of knowledge. These findings align with the research by Kim Mi Hyang and Choi Soon Hee (2007) [8], who also reported that most women exhibited excellent knowledge scores after receiving the intervention.

Third objective was to compare the pre-test and post-test knowledge on cervical cancer among women in control and experimental group. Findings revealed that post-test mean knowledge score of women in experimental group (31.47) was higher than that of control group (12.23) and this difference was statistically significant at $p < 0.05$ level. No statistically significant difference was found between pre-test and post-test mean knowledge score of control group, but the pre and post-test mean knowledge score of control group was highly significant at $p < 0.05$ level. So it was concluded that structured teaching programme had definite impact on raising the knowledge of 87 women. Suneetha Rao and Anitha C (2011) [9] also reported same findings. Their study showed that there was significant improvement between pretest and posttest knowledge score so it showed the effectiveness of structured teaching programme.

Conclusion

The study assessed the knowledge of women about cervical cancer before and after implementing a structured teaching plan, with participants divided into experimental and control groups. Initial pre-test findings showed that women in both groups had poor to average knowledge about cervical cancer, highlighting a gap in awareness. After receiving the structured educational intervention, women in the experimental group demonstrated a remarkable improvement in their knowledge levels. In the post-test, participants in the experimental group scored from average to excellent, with no women remaining at a poor knowledge level. This shift indicates that the structured teaching plan effectively increased understanding and awareness about cervical cancer among these women, providing them with

valuable information on symptoms, prevention, and early detection practices.

Conversely, the control group, which did not receive the teaching intervention, showed little change in their post-test scores. Most women in this group still had poor knowledge, with no participants achieving an excellent level of understanding. This contrast between the two groups strongly suggests that educational interventions can make a substantial difference in raising awareness and empowering women with essential health knowledge. Additionally, the study found no statistically significant relationship between demographic variables and post-test knowledge in either group, indicating that the improvement in the experimental group was likely due to the teaching intervention rather than individual differences. These findings reinforce the need for structured educational programs to improve women's knowledge about cervical cancer.

Limitation

Women who are already diagnosed or treated for cancer of cervix are not included in study.

Women who know the English and Punjabi language are only included in study.

Conflict of Interest

Not available

Financial Support

Not available

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