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Effectiveness of an information booklet on prevention of human papilloma virus infection among adolescent girls

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Abstract
Background: Human Papilloma Virus infection is a group of viruses that is common throughout the world HPV is one of the causative agents in the sexually transmitted infection (STIs) in women HPV is transmitted through sexual contact and is the most common viral infection of the reproductive tract. HPV is a well established causative factor for of cervical cancers around the world.
Purpose of the study was to assess of the effectiveness of information booklet on prevention of Human Papilloma Virus infection among adolescent girls from selected junior colleges of Pune city.
Material and Method: A Quasi-experimental Pre test – post test control group design and Non probability Purposive Sampling method was used. The tool consisted of section I (demographic data), and section II structured knowledge questionnaire to assess the knowledge on prevention of Human Papilloma Virus infection.
Result: Out of 200 participants, majority of adolescent girls 52% were in the age group of 15-16 years (73%) were studying in 11th standard, majority of the participants i.e. 57% were science student and not a single student had previous information about HPV infection. Post- test statistical analysis was done using the test-t, t- value was 46.99 with 197 degrees of freedom corresponding p-value was 0.000 is <0.05 level of significance. The t- test result revealed that there is significant difference between the two means of post test knowledge scores in both the group experimental and control. Showed significant effectiveness of information booklet in improving the knowledge regarding prevention of Human Papilloma Virus infection among adolescent girls.
Conclusion: The analysis reveals that information booklet was helpful to improve the knowledge regarding prevention of Human Papilloma virus infection among adolescent girls.

Keywords: Effectiveness, information booklet, human papilloma, adolescent girls

Introduction

Background of the study

Through sexual contact sexually transmitted infections (STIs) or Sexually transmitted diseases (STDs) are usually developed. The organisms that origin sexually transmitted diseases may pass from person to person in blood, semen, or vaginal and other bodily fluids [1]. Sometimes these infections can be transmitted non sexually, such as from mother to infant during pregnancy, or through blood transfusions or shared needles [1].

It's possible to contract sexually transmitted diseases from people who seem completely healthy, and who may not even be aware of the infection. STDs don't always cause symptom, which is one of the reasons experts prefer the term "sexually transmitted infections" to "sexually transmitted diseases."

Sexually transmitted infection cause through the some agents like bacteria, virus, protozoal, fungal etc. all agents are very high risk for health and this is a not curative disease condition. Out of them there is one virus which is highly responsible for sexual transmitted disease and cervical cancer that is Human Papilloma Virus infection [1].

Human Papilloma Virus infection is caused through Human Papilloma Virus. This virus is very highly infectious agent spread through the multiple partner, early marriage, drug abuse etc.

Human Papilloma Virus infection is a group of viruses that is common throughout the world HPV is one of the causative agents in the sexually transmitted infection (STIs) in women. HPV is transmitted through sexual contact and is the most common viral infection of the reproductive tract.

HPV is a well-known causative factor for about 99% of cervical cancers all around the world.

The major burden of HPV – associated disease is because of cervical cancer. HPV infection is a reason of cervical cancer and a related factor in other anogenital cancers (anus, vulva, vagina and penis) and head and neck cancers. Genital warts are very common and highly infectious.

According to information centre on HPV and cancer, fact sheet in 2017.India has a population of453.02 million women ages 15 years and above who are at risk of increasing cervical cancer. Current estimates show that every year 1, 22,844 women who are diagnosed with cervical cancer and 67,477 die from disease. Cervical cancer position as the 2nd most common cancer among women in India and women between 15 and 44 years of age. Approx 5.0% of women in the general population are estimated to harbor cervical HPV infection at a given time, and 83.2% of persistent cervical cancers are recognized to HPVs infection. Based on Indian studies (performing HPV detection tests in cervical samples) regarding 5.0% of women in the common population area found to carry cervical HPV-16/18 infection at a given, and 82.7% of persistent cervical cancers showed the presence of HPVs 16 or 18 (systematic reviews and meta- analyses of the literature via information centre on HPV and cancer) [2].

According to Lynette J Menezes, *et al.* Invasive cervical cancer is the fourth leading source of cancer with women worldwide and the second leading cause of cancer related mortality among women in India. Nearly 9 out of 10 invasive cervical cancer deaths (87%) occur in the developing world; at 67000 deaths annually, India accounts for 29 % of these invasive cervical cancer deaths and the cause of cervical cancer has been clearly linked to infection with the Human Papilloma Virus infections; and nearly 100% of cervical cancer cases are attributed to Human Papilloma Virus infection. Additionally HPV causes 88% of anal cancers, 43% of vulvar cancers, 70% of vaginal cancer, 50 % of penile cancers, and 70% of orophryngeal cancers [3]. Morethan 100 type of HPV genomes that are fully sequenced nearly 50% have been isolated from the anogenital tract. Human Papilloma virus is a no- enveloped DNA virus that that has predilection for the skin and mucosal epithelial tissue. Human Papilloma Virus are further classified into minimum risk and maximum risk based on their ability to integrate into the host genome and produce malignant lesions. There are 13 HPV genotype 16, 18, 31, 33, 35, 45, 51, 52, 56, 58, 59 and 68 that are designated high risk. Human Papilloma virus 16 and 18 are the most potent carcinogenic type and account for 70% of all cervical cancers globally [1].

Sauvaget C.et.al. revealed women living in rural areas of Maharashtra state who were from low socio economic level and age group of 30 to 59 years were at increasing high risk HPV infection [4].

Jaya chakravarty. *et al.* revealed that HIV positive women with age < 35 years had maximum risk of Human Papilloma Virus infection. It is observed that the low CD4 count was found to be related with increase the risk of Human Papilloma Virus infection in India. The main reason was illiteracy among women in rural areas and lack of knowledge regarding the sexual health [5].

Kirti Sharma et.al. conducted a research to find the incidence of Human Papilloma Virus (HPV) infection and cervical cancer among Indian women, in tribal population there is no study is been done, where the socio-sexual way of life is different. A elevated incidence of Human Papilloma Virus Infection among adolescent and young adult girls belongs to different Indian tribes with different Socio-Sexual Lifestyle were observed. Sample were two thousand two hundred seventy eight healthy tribal girls (9 to 25 years) comprising pre-adolescent, adolescent and young adults from 3 Indian states. Finding reveals that this is the first study shows significantly an extreme prevalence of HPV infection in adolescent and young adult tribal girls possibly due to different socio-sexual behavior [6].

V. Murthy, *et al.* revealed that the incidence and prognostic significance of Human Papilloma Virus (HPV) with squamous cell carcinoma in the Indian population. The people have life style were different and they know about the drugs abuse and alcohol side effect but peoples had no change in daily activity and they were lack of knowledge about the future life style an facing some problem. Incidences are increase the human papilloma virus in squamous cell carcinoma depends upon the youth life style [6].

Akanksha Rathi, *et al.* observed that the cervical cancer was the fifth major mortality rate in India. Women of age of 15 years and above were at high risk of human paipiloma virus infection. Lack of knowledge about disease, vaccine, infection and absence of organized programme for awareness regarding Human Papilloma Virus Infection were major contributing factors [7].

Material and Method

A quantitative research approach and quasi- experimental pre test, post test, control group research design was adopted to conduct study. Non probability purposive sampling technique was used to select 200 adolescent girls in age group 15- 18 years. 100 in experimental group and 100 in control group from selected junior colleges of Pune City. Structured knowledge questionnaire was used to assess the knowledge of adolescent girls regarding prevention of Human Papilloma Virus infection. Levels of knowledge were graded into poor, average and good. Two settings have been divided for the study that is for one experimental group and the second for control group. The data has been collected for experimental group and same day information booklet was provided to all the samples after taking pre test. And post test has been taken after 7 days of pre test. The data has been collected for control group but information booklet was not provided to samples in this group and post test has been taken after 7 days of pre test.

Research Objectives

1. To assess the knowledge of adolescent girls regarding the prevention of Human Papilloma Virus infection before administration of information booklet in both experimental and control group.
2. To assess the knowledge of adolescent girls regarding the prevention of Human Papilloma Virus infection after administration of information booklet in experimental; and control group.
3. To assess the effect of information booklet on knowledge regarding prevention of HPV infection among adolescent girls.
4. To associate the pre test knowledge with selected demographic variables.

Results

The data findings have been organized and presented under the following sections:-

Section I: - Description of demographic variables.

Section II: - Description of evaluation of the effectiveness of information booklet regarding prevention of Human Papilloma Virus infection.

Section III:- Description of the association of pre test knowledge of adolescent girls with selected demographic variables.

Section-I

Table 1: shows description of sample according to demographic variables, n_1=100, n_2=100

S. No.	Demographic Variables	Frequency	Percentage (%)
1	Age (in years)		
	a) 15-16	104	52%
	b) 17-18	96	48%
2	Class		
	a) 11th	146	73%
	b) 12th	54	27%
3	Stream		
	a) Arts	0	0%
	b) commerce	86	43%
	c) science	114	57%
4	Have you received any information regarding Human Papilloma Virus		
	a) Yes	0	0%
	b) No	200	100%

Table no. 1 reveals 52% of participants belonged to age of 15years to 16 years, and 48% of participants belonged to age group 17 years to 18 years. 73% participants were studying 11th standard, and 27% of participants were in 12th standard. 57% participants were studying in science stream, 43% participants were studying in commerce stream, and none of the participants have knowledge regarding Human Papilloma Virus infection.

Section II

Organization of findings

Objective 1

To assess the knowledge of adolescent girls regarding the prevention of Human Papilloma Virus Infection before administration of information booklet in both experimental and control group.

Table 2: Comparison between experimental group and Control group on Pre-test knowledge of adolescent girls regarding the prevention of Human Papilloma Virus Infection. n_1=100, n_1=100

Knowledge Scores (pre-test)	Experimental group (n_1=100)		Control group (n_1=100)	
	f	*%*	*f*	*%*
0-7 (Poor)	93	93%	93	93%
8-13 (average)	7	7%	7	7%
14-20(good)	0	0%	0	0%

From above table of pretest knowledge scores of experimental and control group, it is seen that from experimental and control group not a single participant scored above 14 marks (good). However, in an experimental and control group 93(4%) participants scored marks in the range of 0 to 7 marks (poor). 7 (7%) participants from experimental and control group have obtained poor score.

Table 3: Distribution of control group and experimental group sample in pre test and post test knowledge score.

	Control group		Experimental group	
Variables	**Pre test**	**Post test**	**Pre test**	**Post test**
Mean	4.16	4.68	4.24	14.98
Standard Deviation	1.489	1.53	1.457	1.57

From above table of the standard deviation (SD) for experimental group 1.45 and for control group 1.48 in pre-test. Pre-test μ difference between experimental and control group is not significant as p = > .05 at the level of significance.

Objective 2

To assess the knowledge among of adolescent girls regarding the prevention of Human Papilloma Virus Infection before administration of information booklet in both experimental and control group.

Table 4: Comparison between experimental group and Control group on Post-test knowledge of adolescent girls regarding the prevention of Human Papilloma Virus Infection. n_1=100, n_2=100

Knowledge Scores (post-test)	Experimental group (n_1=100)		Control group (n_2=100)	
	f	*%*	*f*	*%*
0-7 (Poor)	0	0%	88	88%
8-13 (average)	4	4%	12	12%
14-20(good)	96	96%	0	0%

Table (4) depicts knowledge of adolescent girls regarding prevention of Human Papilloma Virus infection after administration of information booklet. It was found that knowledge of 96% of participants in experimental group was good marks (that is above 14) in the post test, 4% participants have average knowledge (that is 8- 13). In control group 88% participants had poor knowledge (that is 0- 7).

Objective 3

To assess the effect of information booklet on knowledge regarding prevention of Human Papilloma Virus infection among adolescent girls.

Table 5: Comparison of pre-test and post- test scores of experimental and control group**,** n_1=100, n_2=100

Groups	Knowledge scores	Mean	SD	df	*T*	*p* Value
Experimental	Pre-test	4.24	1.45	98	.384	.350
Control	Pre-test	4.16	1.48			
Experimental	Post – test	14.08	1.57	98	46.99	0.00
Control	Post –test	4.68	1.53			

Table (5) above depicts the comparison of descriptive statistics in experimental group and control group for post-test knowledge scores. The post-test mean (μ) of experimental group 14.98 and control group 4.68.

Table 6: Comparison of pre-test and post- test scores of control group and experimental group.

Test	Values	Control group	Experimental Group	t –value
Pre test	Mean	4.16	4.24	.384
	St. deviation	1.48	1.45	
Post test	Mean	4.68	14.08	46.99
	St. deviation	1.53	1.57	

Table above depicts the comparison of descriptive statistics in experimental group and control group pre- test and post-test knowledge scores. Statistical *t* test was applied for comparison of pre-test mean of control group in 4.160 and pre test mean of experimental group is 4.240. This means that pre test knowledge score of both the groups are almost similar. After administration of information booklet mean post test score of control group is 4.680 and post test mean score of experimental group is 14.08.

This shows significant increases in knowledge score of experimental group participants.

The standard deviation (SD) for experimental group 1.57 and for control group 1.53 in the post-test. Post-test μ difference between experimental and control group is significant as p = .000 which is less than 0.05 at the level of significance

The t'test result implies that there is highly significant difference between the two means of post-test knowledge scores of the subjects in experimental group and control group. The above findings thus establish that the two groups are different significantly in their post-test knowledge level. The finding of this analysis taken together leads to rejection of null hypothesis. And hence the researcher of this study accepts the H_1 that is there is significant difference in knowledge scores before and after administration of information booklet regarding prevention of Human Papilloma Virus infection among adolescent girls at 0.05 level of significance.

Section III

Objective 4

To associate the pre test knowledge with demographic variables.

The Chi-square test (X^2) represents a useful method of comparing experimentally obtained results with those to be expected theoretically on some hypothesis. In present study hypothesis related to association between the knowledge and selected demographic variable was tested for its significant by applying Pearson Chi-Square test.

Table 7: Association between pretest knowledge scores and selected demographic variables, n_1=100, n_2=100

Variables	*p* Value control group	*p* Value experimental group	Significant / not significant
Age	0.873	0.184	Not significant
Class	0.863	0.479	Not significant
Stream	0.863	0.479	Not significant

The results presented in above table indicates that there is no statistically significant relationship between the pretest knowledge score with selected demographic variables in experimental group; such as age the probability of the chi-square test statistic (chi-square=1.540) was p=0.184, more than the alpha level of significance of 0.05; class (chi-square=0.481) was p=0.479; stream (chi-square=0.481) was p=0.479. Hence, the Chi square findings accept the null hypothesis that there is no significant association between the pre test knowledge and age, class, stream, information about prevention on Human Papilloma Virus infection selected demographic variable at 0.05 level of significance.

There is no statistically significant relationship between the pretest knowledge score with selected demographic variables in control group; such as age the probability of the chi-square test statistic (chi-square=0.025) was p=0.873, more than the alpha level of significance of 0.05 ; class (chi-square=0.030) was p=0.863; stream (chi-square=0.030) was p=0.863. Hence, the Chi square findings accept the null hypothesis that there is no significant association between the pre test knowledge and age, class, stream, information about prevention on Human Papilloma Virus infection selected demographic variable at 0.05 level of significance.

Discussion

The findings of the study was discussed with the objectives and hypotheses stated. The present study was under taken to determine the effectiveness of an information booklet on prevention of Human Papilloma Virus infection among adolescent girls from selected junior colleges of Pune City. Sample of 200. Researcher applied t- test for comparison of pre test and post knowledge score before and after information booklet. Average score in pre test was 4.24 which increased to 14.98 in post test. t value for comparison was 8.08. Corresponding p value was 0.000, which is small (less than 0.05), null hypotheses is rejected. Information booklet was found to be significantly effective in improving the knowledge.

To support present study, researcher intends to cite few of the previously carried out studies which are as follows;

In this study also 88% participants have poor knowledge regarding HPV vaccination and infection.

Krishna Kavitha Ramavrat, *et al.* conducted a Cross-Sectional Study to assess the level of awareness and knowledge of HPV infection and vaccination. 1,000 adolescent girls were taken from secondary schools and colleges in 5 metro cities of India. Findings reveals that the present study brings out the unawareness related to HPV infection and vaccination in urban adolescent girls.

A cross-sectional study was conducted by Cheena Chawla among 590 healthcare professionals from 232 hospitals and 80 PHCs of nine districts of Delhi-NCR (National Capital Region). A total of 590 (526 female, 64 male) healthcare providers were surveyed. The results of study only 47 per cent of respondents recommended young women to get vaccinated against HPV. Majority of respondents (81%) were found to be aware about the existence of vaccines for cervical cancer prevention. District-wise, highest (88.3%) awareness about the existence of vaccines against HPV was reported from Gautam Budh Nagar and lowest (64%) in Faridabad. Although 86 per cent of gynecologists were aware about the names of HPV vaccines available in the market, only 27 per cent of paramedical staff had this knowledge. There was a significant difference between the respondents from government and private sectors regarding their awareness about HPV vaccines. Lack of attentiveness about the principal cause, risk factors and symptoms for cervical cancer and HPV vaccination was significantly ($P<$ 0.05) reported in the respondents from paramedical staff category.

Mrs. Chetan Kumar Rathore *et al.* (2014) conducted a study to assess the knowledge of mothers regarding home management of selected common illness in children in Gujrat. The study was convient purposive sampling technique and 60 mother were as a sample. Findings revealed that in the pre test mothers have average knowledge and after administration of information booklet the post test was conducted which showed that mothers have gain knowledge about the home management of common illness in children [24].

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