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Awareness of cancer cervix and its prevention among students in Melaka, Malaysia

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Abstract:

BACKGROUND: Cancer cervix is caused by human papillomavirus (HPV), oncogenic virus and has vaccines and screening as its preventive measures. This study analyzes the change in awareness and attitudes of nonmedical students toward the condition following the use of an educational module.

METHODOLOGY: The study design was quasi-experimental. The interprofessional (IP) team implemented an educational module and analyzed the difference in awareness of young individuals toward the cancer cervix. A pretest and posttest written questionnaire, customized for both genders, was administered with the intervention of the educational module in between. The module consisted of a short educational presentation along with a group activity. A follow-up survey was also done after 2 months to check the attrition of awareness. The statistical analysis was done using MacNemar test using SPSS 12 IBM software and significance of differences were determined.

RESULTS: There was a significant improvement of knowledge and awareness on linkage between HPV and cervical cancer ($P < 0.001$). There was also significant change with regard to attitudes toward cervical cancer vaccination ($P = 0.004$). The knowledge of HPV linkage to the malignancy was maintained after 2 months of gap. The subjects also wished for more future awareness program.

CONCLUSIONS: There is improved awareness in the dental and foundation in science students, and this improved awareness will ensure favorable attitudes toward cervical cancer vaccines or will attend regular screening programs. Awareness program must be held at regular intervals at different locations to enhance the knowledge dissemination of this common yet preventable genital malignancy of females. The IP collaboration and practices will help in reducing the disease burden of the society in future.

Keywords:

Awareness, cancer cervix, education, screening

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Introduction

Cancer of cervix is the most common genital malignancy of the female population. Cancer cervix is caused by human papillomavirus (HPV), and there are vaccines against this oncogenic virus.^[1] Studies reveals that the community in general has a lack of awareness of the causative agent and preventive methods of this cancer which are HPV and vaccines or screening respectively.^[2]

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These vaccines can cover 70%–80% of all the HPV responsible for this malignancy. With vaccination and regular screening this malignancy can be controlled to a great extent. There are no credible side effects reported for these vaccines in the postmarket surveillance making it a relatively safe vaccine.^[2,3]

Cancer cervix awareness is of prime importance among the general population. Studies conducted in Malaysian women suggest that there is partial awareness of cancer cervix. They are aware of its

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causative factor as multiple sexual partners and sexually transmitted disease and screening method like Pap smear.^[4,5] The awareness amongst nursing students in Sudan appeared to be very poor with regards to cancer prevention.^[6,7] Dental students revealed poor knowledge with regard to causative factor and screening methodology.^[8] Sometimes, awareness about the disease process might be adequate, but poor practice in prevention methods^[9] neutralizes the knowledge learned by the health workers. There is an awareness gap about other causative agents and also preventive methods for cancer cervix vaccines. This lacuna in awareness is addressed in the educational module to improve the wholesome awareness of cancer cervix. An effective educational module is a necessity for the various group of professionals who might come across women at high risk. The educational module will make them aware of the disease process and basic causative predisposition. They will also bring in an attitudinal change in the society by changing the practice whereby women will be aware of the preventive measures for cancer cervix and possibly incorporate them in their lifestyle. We believe with the help of interprofessional (IP) team, the practice of vaccinating and early detection of premalignant condition will be enhanced thereby improving the health of the society.

Methodology

The study design was quasi-experimental. The objectives of the study was to assess the baseline awareness of etiology of cancer cervix and knowledge of its vaccination and to evaluate the improvement in the awareness of etiology of cancer cervix and knowledge of its vaccination with the intervention of educational module conducted by IP collaboration. This was done in reputed private college from October 2017 to January 2018. This project was focused on students who were not taught about cancer of cervix as part of their curriculum. Therefore the students were chosen from the Foundation in Science (FiS) and dentistry students. These students were invited for a half day workshop. The students were between 18 and 23 years old. At the onset, they were given a pretest questionnaire. This questionnaire was validated by the IP team, which included the subject expert. It had 19 questions for girls with answers in either multiple options or Likert rating. For boys the number of questions were 14 in number. The questionnaire was given to the cohort of participants in the group who attended the educational module. Consent was taken by a signature in the questionnaire. After pretest, the participants were subjected to a short educational presentation followed by group activity. The educational presentation along with the group activity constituted the aforementioned educational module. At the end of the entire session, a posttest was administered. Two months later, the

same cohort was administered the questionnaire which was given during pretest and posttest. The knowledge and attitude were assessed and compared between the pretest versus posttest, pretest versus follow-up (F/up), and posttest versus F/up. F/up group consists of participants who attended the educational module and also answered the questionnaire after 2 months following the intervention of educational module. The analysis of the students who attended pretest, posttest and F/up were done. The attrited students from F/up were excluded from the final analysis. The statistical analysis was done using MacNemar test using SPSS 12 IBM software (SPSS Inc, Chicago, IL, USA) and significance of differences were determined.

The IP team was formed in the initial phase which included medical personnel and faculty members, FiS and dental faculty members, dental clerk, FiS clerk, MBBS graduates, statistician, and faculty from community medicine department. The Institutional Ethical Committee (IEC) clearance was obtained before conducting this study. The IEC ethical approval number is MMMC/FOM/Research Ethics Committee - 1/2017.

Results

Table 1 shows the demographic characteristics of the participants. The mean age of the participants was 20.8 years (standard deviation 1.4 years). Most of the participants were female (77.6%). 58.2% of the participants were Chinese, 28.4% were Indian, 9% were Malay, while 4.5% were other ethnicity [Table 1].

Table 2 shows the knowledge toward cervical cancer, HPV vaccination, and opinion about awareness program between pre- and post-intervention. There were significant differences about knowledge on link between HPV and cervical cancer, heard of cervical cancer screening, heard of vaccination and opinion on its effectiveness, and attitudes toward cervical cancer vaccination between preintervention and postintervention. At preintervention, 97.0% of the students had heard of cervical cancer, 72.3% of them

Table 1: Demographic characteristics of the participants (n=67)

Variables	n (%)
Age ^a	20.8 (1.4)
Gender	
Male	15 (22.4%)
Female	52 (77.6%)
Race	
Malay	6 (9.0%)
Chinese	39 (58.2%)
Indian	19 (28.4%)
Others	3 (4.5%)

^aMean (SD)

had knowledge on link between HPV and cervical cancer, 68.7% had heard of cervical cancer screening, and 75.8% had heard of cervical cancer vaccination. At postintervention, all students (100%) had heard of cervical cancer, had knowledge on link between HPV and cervical cancer, and had heard of cervical cancer vaccination. With regard to the opinion toward awareness program, there was no significant difference between preintervention and postintervention ($P = 0.082$); however, 89.2% of the students mentioned that it is needed at preintervention, but it was increased to 96.9% [Table 2].

Table 3 shows attitudes toward HPV vaccination between pre- and post-intervention. At preintervention, 53.8% mentioned that the cervical cancer vaccines were effective while 40% were not sure about it. There was also significant difference in regard to attitudes toward effectiveness of cervical cancer vaccination between pre- and post-intervention ($P = 0.004$). At preintervention, 59.7% of the students agreed, 4.5% disagreed, and 10.4%

were not sure that if a woman is vaccinated with cervical cancer vaccine, then she does not need any further screening test; however, it was increased to 74.6% of at postintervention [Table 3].

Table 4 shows that there was significant difference about knowledge on link between HPV and cervical cancer, heard of cervical cancer screening, and heard of vaccination between preintervention and F/up. However, there was no significant difference about heard of cervical cancer between preintervention and F/up ($P = 0.500$). With regard to the opinion toward awareness program, there was significant difference ($P = 0.030$) as 89.6% of the students mentioned that it is needed at preintervention, but it was increased to 100% during F/up [Table 4].

Table 5 shows that there was significant difference about opinion on its effectiveness between preintervention and F/up. At preintervention, only 49.2% of the students

Table 2: Comparison of knowledge towards cervical cancer, HPV vaccination and opinion about awareness program between pre and post intervention

Pre Intervention	Post Intervention			n	P
	n (%)	n (%)	n (%)		
Have you heard of cancer cervix?	Yes	No			
Yes	65 (97.0%)	0	-	67	0.500
No	2 (3.0%)	0	-		
Is there a link between HPV and cervical cancer?	Yes	No	Not sure		
Yes	47 (72.3%)	0	0	65	<0.001
No	0	0	0		
Not sure	18 (27.7%)	0	0		
Have you heard about cervical cancer screening test?	Yes	No			
Yes	46 (68.7%)	0	-	67	<0.001
No	20 (29.8%)	1 (1.5%)	-		
Have you heard about the vaccine for cancer cervix?	Yes	No			
Yes	50 (75.8%)	0	-	66	<0.001
No	16 (24.2%)	0	-		
Do you think an awareness program is needed for students of health professional education?	Yes	No	Not sure		
Yes	58 (89.2%)	0	0	65	0.082
No	2 (3.1%)	2 (3.1%)	0		
Not sure	3 (4.6%)	0	0		

HPV=Human Papilloma Virus

Table 3: Comparison of attitudes towards HPV vaccination between pre and post intervention

Pre Intervention	Post Intervention			n	P
	n (%)	n (%)	n (%)		
In your opinion, are HPV vaccines effective?	Yes	No	Not sure		
Yes	35 (53.8%)	0	0	65	<0.001
No	0	0	0		
Not sure	26 (40.0%)	0	4 (6.2%)		
If a woman is vaccinated with cervical cancer vaccine then she does not need any further screening test.	Agree	Disagree	Not sure		
Agree	40 (59.7%)	8 (11.9%)	0	67	0.004
Disagree	3 (4.5%)	2 (3.0%)	0		
Not sure	7 (10.4%)	4 (5.9%)	3 (4.5%)		

HPV=Human Papilloma Virus

Table 4: Comparison of knowledge towards cervical cancer, HPV vaccination and opinion about awareness program between pre and follow-up intervention

Pre Intervention	Follow-up Intervention			n	P
	n (%)	n (%)	n (%)		
Have you heard of cancer cervix?	Yes	No	-	67	0.500
Yes	65 (97.0%)	0	-		
No	2 (3.0%)	0	-		
Is there a link between HPV and cervical cancer?	Yes	No	Not sure	65	<0.001
Yes	48 (73.8%)	0	0		
No	0	0	0		
Not sure	15 (23.1%)	1 (1.5%)	1 (1.5%)		
Have you heard about cervical cancer screening test?	Yes	No	-	67	<0.001
Yes	46 (68.7%)	0	-		
No	21 (31.3%)	0	-		
Have you heard about the vaccine for cancer cervix?	Yes	No	-	67	0.004
Yes	47 (70.1%)	3 (4.5%)	-		
No	16 (23.9%)	0	-		
Do you think an awareness program is needed for students of health professional education?	Yes	No	0	67	0.030
Yes	60 (89.6%)	0	0		
No	4 (6.0%)	0	0		
Not sure	3 (4.5%)	0	0		

HPV=Human Papilloma Virus

Table 5: Comparison of attitudes towards HPV vaccination between pre and follow-up intervention

Pre Intervention	Follow-up Intervention			n	P
	n (%)	n (%)	n (%)		
In your opinion, are HPV vaccines effective?	Yes	No	Not sure	65	<0.001
Yes	32 (49.2%)	0	3 (4.6%)		
No	0	0	0		
Not sure	28 (43.1%)	0	2 (3.1%)		
If a woman is vaccinated with cervical cancer vaccine then she does not need any further screening test.	Agree	Disagree	Not sure	67	0.221
Agree	41	3	4		
Disagree	4	1	0		
Not sure	11	1	2		

HPV=Human Papilloma Virus

agreed that HPV vaccines are effective, but 92.3% of them stated that HPV vaccines are effective at F/up intervention. However, there was no significant difference about attitudes toward cervical cancer vaccination between preintervention and F/up [Table 5].

Tables 6 and 7 show the knowledge toward cervical cancer and attitudes toward HPV vaccination between postintervention and F/up. There was no significant difference about heard of cancer cervix, knowledge on link between HPV and cervical cancer, heard of cervical cancer screening, heard of vaccination and opinion on its effectiveness, attitudes toward cervical cancer vaccination, and opinion toward awareness program between postintervention and F/up [Tables 6 and 7].

Discussion

The incidence of cancer cervix in Malaysia is 7.7 out of 100,000.^[10] This makes this cancer one of the common

genital cancers affecting the women population and warrants measures to curb it or prevent it. The government administers free vaccination for girls for only 13 years of age; however, there is a considerable lack of awareness of these vaccines and there is significant ethnic variations noted when it comes to acceptability. The project was conducted among subjects who are of an impressionable age and with the right training and knowledge can be molded for better outcomes. Among them, majority were females which is even better as this malignancy happens in the female population. Social media played an important role in the source of knowledge for screening test and vaccines for this malignancy. HPV is proven to be a causative organism for cancer cervix in 70% of cases.^[11] HPV vaccines are relatively a newer concept for most young girls.^[12] HPV vaccines are effective and they do not cause any major side effects.^[2] They are immunogenic and have a very good seroconversion, and hence, it can play an important role in primary prevention of cancer

Table 6: Comparison of knowledge towards cervical cancer, HPV vaccination and opinion about awareness program between post and follow-up intervention

Post Intervention	Follow-up Intervention			n	P
	n (%)	n (%)	n (%)		
Have you heard of cancer cervix?	Yes	No	-	67	0.999
Yes	67 (100.0%)	0	-		
No	0	0	-		
Is there a link between HPV and cervical cancer?	Yes	No	Not sure	63	0.368
Yes	61 (96.8%)	1 (1.6%)	1 (1.6%)		
No	0	0	0		
Not sure	0	0	0		
Have you heard about cervical cancer screening test?	Yes	No	-	67	0.999
Yes	66 (98.5%)	0	-		
No	1 (1.5%)	0	-		
Have you heard about the vaccine for cancer cervix?	Yes	No	-	67	0.250
Yes	64 (95.5%)	3 (4.5%)	-		
No	0	0	-		
Do you think an awareness program is needed for students of health professional education?	Yes	No	Not sure	65	0.157
Yes	63 (96.9%)	0	0		
No	2 (3.1%)	0	0		
Not sure	0	0	0		

HPV=Human Papilloma Virus

Table 7: Comparison of attitudes towards HPV vaccination between post and follow-up intervention

Post Intervention	Follow-up Intervention			n	P
	n (%)	n (%)	n (%)		
In your opinion, are these vaccines effective?	Yes	No	Not sure	65	0.999
Yes	56 (86.1%)	0	5 (7.7%)		
No	0	0	0		
Not sure	4 (6.2%)	0	0		
If a woman is vaccinated with cervical cancer vaccine then she does not need any further screening test.	Agree	Disagree	Not sure	67	0.091
Agree	45 (67.2%)	3 (4.5%)	2 (3.0%)		
Disagree	8 (11.9%)	2 (3.0%)	4 (6.0%)		
Not sure	3 (4.5%)	0	0		

HPV=Human Papilloma Virus

cervix.^[3,12,13] Awareness in certain communities might be low; however, once the awareness is increased, the willingness to use screening method and vaccination is very high.^[14] There are many educational modules on cancer cervix prevention for health personnel such as general practitioners, nurses, gynecologists, and sexual health physicians; however, there are no uniform structured educational modules for the community. Most of the educational sessions are limited to an educational presentation on the disease and its prevention method. An educational presentation has also shown to have profound benefit on the awareness of people and their outlook on screening for cancer cervix.^[15] A similar study done in Haiti consolidates that if proper awareness is given to women about HPV and screening, there is improvement of willingness to practice the screening methods.^[16] Study in Korea found that mother played an important role in educating their daughters and to enforce education mother and daughters would definitely go a long way toward

cancer cervix prevention.^[17] Choosing the target population to spread the awareness is of paramount importance, as that will determine the sustainability of the awareness. Usually, since this a malignancy of women, most often women population will be chosen. The women should be educated about the mortality and morbidity of the disease and more importantly the modes of prevention, namely primary prevention by usage of vaccines and secondary prevention by screening of the premalignant conditions for cancer of cervix. The secondary schools should come under the awareness program, as vaccination is most applicable at that age before exposure to sexual intercourse. Furthermore, formation of an effective team, which is the foundation stone for an IP project, will go a long way in disseminating the knowledge and awareness of cancer cervix and its prevention. This study showed us that with proper educational module, the awareness of the disease process got enhanced even among students of science-related subjects.

Conclusions

The educational module used in the study significantly improved the awareness of the malignancy *per se* and knowledge of availability of its prevention such as screening methods and vaccines among the students of dentistry and FiS. The module also led to a change of attitude toward an increase need for awareness program and modules in future. The findings revealed that the knowledge of linkage of HPV and cancer cervix improved significantly after the execution of the module and it was maintained even during F/up. With an IP team approach, it is possible to improve the awareness and acceptability about the vaccines and screening in the general population. The improved awareness of the disease process, screening techniques, and acceptability of the vaccines will definitely impact on the lifestyle of the female population and in turn reduce the cancer load in the society and improve the community health status.

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Conflicts of interest

There are no conflicts of interest.

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