International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Cervical Cancer Screening: Does Awareness & Attitudes Vary Among Doctors and Nurses? A KAP study Analysis in a Tertiary Hospital in Northern India

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Abstract: ***Background: Cervical cancer is potentially one of the most preventable and treatable cancer. Despite the known efficacy of cervical screening, a significant number of women in the developing countries like India do not avail themselves of the procedure due to lack of awareness and sociocultural misconceptions. Objectives: To elicit information and compare the knowledge, attitude and practice (KAP) regarding cervical screening (Pap test) among female doctors and nurses working in a tertiary hospital in Northern India. Materials and Methods: A cross-sectional, descriptive study was conducted with semi-structured, self-administered questionnaire among the two study groups.Appropriate statistical tests were applied. Results: 95.9 % doctors and 93.9%) nurses were aware of the importance of PAP test screening and HPV vaccination (88.2%). Despite having direct access to screening, both groups showed poor screening rates (30.4% doctors and 31.6% nurses). The most common reason cited by both was not finding the need as they did not perceive themselves to be at risk. Acceptance for HPV vaccination was more (59.2%) than Paps test (31.4%) Conclusions: In spite of good knowledge and attitudes towards prevention of cancer cervix, Pap test and HPV vaccination, practice remained low among both doctors and nurses.***

Keywords: doctors, nurses, PAP test, HPV vaccine Delhi

1. Introduction

Every year 570,000 women are diagnosed with cervical cancer globally leading to 280,000 deaths per year. It is the fourth most frequent cancer in women representing 6.6% of all female cancers. Approximately 90% of deaths from cervical cancer occurred in low- and middle-income countries. [1]

One quarter of the worldwide burden of cervical cancer occurs in India alone. It accounts for 17% of all cancer deaths among women aged between 30 and 69 years. Estimates indicate that 1 in 53 Indian women will develop cervical cancer during their lifetime compared with 1 in 100 women in more developed regions of the world. This is due to lack of rigorous screening which leads to cervical cancer presenting at an advanced stage .[2]

The preventive strategies against cervical cancer includes primary prevention in the form of Human Papilloma Virus (HPV) vaccination and secondary prevention in the form of Papanicolou screening (commonly known as Paps test) and Visual Inspecton by Acetic Acid and Lugols Iodine (VIA –VILI screening).[3] . Although the effectiveness of the Pap smear in reducing cervical cancer incidence and mortality has already been demonstrated in many developed countries[4,5], there is a wide disparity in rates of screening for cervical cancer in developing countries with the average screening coverage rate in developed countries at 63% compared to 19% in developing countries [6]

Recognizing the magnitude of the problem, the Government of India launched The National Programme For Prevention Of Diabetes , Cardiovascular Diseases , Cancer And Stroke (NPCDCS) in 2010 in which cervical screening is a very important component. Many organizations like The ISCCP (Indian society of cervical cancer prevention) is very actively involved in spreading awareness to increase the uptake of screening .Despite this, the uptake of screening remains very poor. The reasons are largely illiteracy, unawareness of the screening programmes and unavailability of screening facilities [7]. However, apart from these tangible factors, attitudes like cultural beliefs, myths, social pressure, embarrassment and time constraints also play an important role as a barrier in uptake of screening.[8,9]

Nurses and physicians are the people most intimately involved in patient health. Their beliefs and attitudes have a tremendous impact on the uptake of cervical screening. They are a role model for women they come in contact and it stands to reason that their own practices will largely dictate the practices of the women they come in contact with

It is essential that our health care professionals are completely aware of the advances and the interventions that can be utilized especially in an under resourced setup.[10]

There are very limited studies that assess the KAP of Paps Testing and HPV vaccination among health care providers. Screening practices may be different among doctors as compared to nurses for which very few studies are available in literature.[10]

Thus this study was conducted in a group of doctors and nurses employed in a in a tertiary care hospital with direct access to Paps test as an attempt to better understand barriers to the uptake of cervical screening. It seeks to identify that

perhaps it is not only the logistical issues and education but also the sociocultural issues that are a major deterrent in the success of cervical screening in our country. Understanding the impact of attitudes could be a key factor in increasing uptake of cervical cancer screening and decreasing mortality due to this preventable cancer.

2. Material & Methods

Study settings: The study was a cross sectional descriptive study conducted in a tertiary hospital of Delhi .It is a multispecialty 980 bedded hospital which primarily caters to a population of about 18 lacs –largely from Northern part of Delhi, though its services are also utilized by patients from rural areas, towns from neighbouring states .

Study population: All the female health workers/nurses employed in the hospital for at least a year.

Inclusion criteria

- Women aged 21 to 60 years
- Willing to participate in the study after informed written consent

Exclusion criteria

- < 21 years or > 60 years
- Not working in the hospital
- Not willing to participate in the study
- Diagnosed cases of any kind of malignancy
- Family history of malignancy of uterus, cervix breast or colon.

Sample size and sampling:
Assuming that knowledge, attitude, and practice (KAP) regarding cervical cancer screening among female HCPs as 50%, sample size is calculated using the formula: N = − z d 2 2 pq where, z = standard normal deviant at 95% confidence level that is, 1.96, P = prevalence of knowledge 50%, d = relative precision of 20%. N = (.) ∗ ∗ ( ) 1 96 50 50 10 2 2 = 96.04 ~97.

Allowing a 10% non response rate the sample size comes to around 107.

The total number of regular nurses employed in the hospital was ascertained from matron office and found to be 323 .The total number of regular female doctors employed as ascertained from the administrative block was 109.

Nurses and doctors working in the clinical departments were randomly selected for the study on proportionate basis. A convenient sample size of 200 was taken.

Study tool: A structured questionnaire consisting of 21 questions related to demographic features, knowledge and attitudes towards cervical screening and hpv vaccination with their personal practices was developed for data collection.

The questionnaire was in English and the questions were short and clear with close ended responses .The content validity of the questionnaire was confirmed through extensive literature review and the expert opinions of doctors specialized in gynaecology, public health (community medicine) and medical education.The first 10 questions were related to demographic features like age, education, religion and occupation , marital/relationship status , no of children etc. The next 6 questions were to assess the knowledge about general facts related to cervical cancer like availability of screening, risk factors and screening recommendations.

There were 5 questions about personal screening practices on whether it had been done and if not then what were the reasons cited. The next 5 questions were about hpv vaccination beliefs; whether it had been administered to self or others and what were the reasons for not accepting it.

Study methods: The questionnaire was distributed to 223 female health workers meeting the inclusion criteria working as either nursing staff or doctor in the hospital . Out of these, 200 respondents were willing to participate. 98 doctors and 102 nurses completed the questionnaire. The questionnaire was given personally by 2 post graduate doctors working in the department of ob-gyn using an individualized approach on a one to one basis. They were available to answer any queries raised by the participants based on their participation to find the necessary information.

A written consent was taken and each respondent was assured the questionnaire was completely confidential. No personal details like name, address, phone number or email address were entered.

Each respondent received information about the objectives and potential benefits of the study in a non-judgemental manner. They were further assured that their participation was completely voluntary and they had the right to withdraw from the study at any time.

Every respondent was given an opportunity to ask further questions and an email id was given for answering any further queries related to cervical screening.

Statistical analysis
The data was compiled, entered in Microsoft Excel 2010 and analysed using the statistical package for social services (SPSS) version 17.0. Descriptive statistics were used to characterize the study participants. Association between socio-demographic factors and awareness and practices were assessed using the chi square test P value <0.05 was considered significant.

Ethical consideration
The study participants were explained about the objectives and purpose of the study. Informed written consent was taken from each participant prior to data collection. Privacy and confidentiality of each participant was assured. The study received ethical approval from the Institutional ethics committee.

3. Results & Discussion

Table 1: Socio-demographic profile of study participants

Variables	*Doctors N (%)*	*Nurses N (%)*	*Total N (%)*	*P value*
Total	98 (49)	102 (51)	200	
Age				0.015*
<=30 years	46 (46.9)	26 (25.5)	72(36)	
31-40 years	22 (22.4)	40 (39.2)	62 (31)	
41-60 years	28 (28.6)	36 (35.2)	64 (32)	
>60 years	2 (2.1)		2(1)	
Education status				<0.001*
12th pass	0(0)	22 (21.6)	22 (11)	
Graduate	24 (24.5)	74 (72.5)	98 (49)	
Post graduate	74 (75.5)	6 (5.9)	80 (40)	
Marital status				0.003*
Married	62 (63.3)	90 (88.2)	152 (76)	
Unmarried	36 (36.7)	12 (11.8)	48 (24)	
Cohabitation or sexually active	66 (67.3)	88 (86.3)	154 (77)	<0.001*
Number of Children	N=62	N=90	152	0.035*
0	20 (32.3)	16 (17.8)	36 (23.7)	
1	12 (19.3)	10 (11.1)	22 (14.5)	
2	24 (38.8)	58 (64.5)	82 (53.9)	
3	4 (6.4)	4 (4.4)	8 (5.3)	
4	2 (3.2)	2 (2.2)	4 (2.6)	
Age of sexual debut				0.09
15-20 years	2 (2.0)	4 (3.9)	6 (3)	
21-25 years	24 (24.5)	48 (47.1)	72 (36)	
26-30 years	32 (32.6)	32 (31.5)	64 (32)	
> 30 years	6 (6.0)	6 (5.9)	12 (6)	
Not yet	34 (32.7)	12 (11.8)	46 (23)	
*P value<0.05				

As can be seen from **Table 1** , 46.9% of the doctors were less than 30 years of age .Compared to this most nurses were between 31 -40 years of age (39.2%) .This reflected that the study was conducted in the active reproductive period of life of in both groups though the age of the nurses was more than the doctors. 67.3% doctors and 86.3% nurses were married. This was statistically significant. (p value 0.003). 42.8% doctors and 73.6% doctors had children. It is observed that cervical cancer screening is more among married women.[11] It is a common observation that doctors tend to get married and have kids late. Due to the sociocultural restraints , information regarding sexual activity is often withheld [12,13] Kosambiya etal [14] and other studies have also reported studies done in similar age groups [12,13]. 75.5% of doctors were postgraduates (vs 5.9% nurses) while 72.5% of the nurses were graduates (vs 24.5% doctors). The difference in age and education between the two groups was statistically significant (P value .015 and 0.001 respectively). This observation is also supported by Gianfranco Daminai etal whose meta-analysis clearly demonstrated that screening practices for both cervical and breast cancer was more among better educated women.[15]

Table 2: Awareness about cervical cancer screening among study participants

Variables	Doctors N (%)	Nurses N (%)	Total N (%)	P value
Total	98 (49)	102 (51)	200 (100)	
Awareness about cervical cancer being most common (Yes)	92 (93.9)	96 (94.1)	188 (94)	0.55
Awareness about availability of cancer screening (Yes)	92 (93.9)	90 (88.9)	182 (91)	0.41
Recommended age of cervical cancer screening				0.001*
< 30 years	30 (30.6)	22 (21.6)	52 (26)	
> 30 years	24 (24.4)	62 (60.8)	86 (43)	
After becoming sexually active	40 (40.8)	12 (11.8)	52 (26)	
Don't Know	4(4.1)	6 (5.9)	10 (5)	
Screening interval				0.16
Every year	46 (46.9)	70 (68.5)	116 (58)	
Every 2 years	16 (16.3)	10 (9.8)	26 (13)	
Every 3 years	32 (32.7)	14 (13.7)	46 (23)	
Don't Know	4 (4.1)	8 (7.9)	12 (6)	
Awareness about upper age limit of screening				0.001*
40 years	22 (22.4)	10 (9.8)	32 (16)	
60 years	6 (6.1)	22 (21.6)	28 (14)	
All life	28 (28.6)	40 (39.2)	68 (34)	
Till it is negative three times	26 (13.5)	8 (7.8)	34 (17)	
Till it is negative once	2 (2.0)	4 (3.8)	6 (3)	
Don't know	14 (14.2)	18 (17.8)	32 (16)	
Risk factors for cervical cancer				
Smoking	50 (50.1)	4 (3.9)	54 (27)	0.001*
Many sexual partners	82 (83.7)	52 (51)	134 (67)	0.004*
Human Papilloma Virus (HPV)	78 (79.6)	50 (49.5)	138 (69)	0.004*
No regular check ups	70 (71.4)	30 (29.4)	100 (50)	0.001*
Sexually Transmitted Diseases	78 (79.6)	50 (49.5)	138 (69)	0.004*
Awareness about cervical cancer being preventable (Yes)	92 (93.9)	92 (90.2)	184 (92)	0.62
Awareness about HPV vaccination (Yes)	82 (83.7)	66 (64.7)	148 (74)	0.01*
Awareness about recommended age of giving HPV vaccine (Yes)	76 (77.8)	64 (62.7)	140 (70)	0.001*
*P value<0.05				

As can be seen from **Table 2** , 93.9% doctors and 94.1% nurses were aware that cervical cancer is the most common cancer of women in India and 93.9 % doctors and 90.2% nurses were aware that it can be prevented . Regarding availability of paps test , 93.9% doctors and 88.2% nurses were aware that screening for cervical cancer is available. This is similar to previous studies. [14,16-19]. The awareness of doctors regarding screening recommendations and risk factors was significantly better than nurses. This was similar to other studies [20,21]

The table also shows that majority of doctors (40.8%) believed that screening for cervical cancer should begin after sexual activity , Compared to this , 60.8% percent of nurses believed that screening should be done after the age of 30 years and only 11.8% believing that it should be done after sexual debut. This was statistically significant. Majority of respondents (46.9% doctors and 68.6% nurses) believed that screening for cervical cancer should be done every year. Only 32.7% doctors were aware that cervical screening is recommended every 3rd year(vs. 13.7 % of nurses). While doctors were significantly better informed than nurses about screening recommendations (p value .001) awareness was not adequate even among them .This was similar to some studies [22] and better than others like Mutyaba etal [18] and others [19, 23].The table also shows that awareness regarding appropriate time interval for screening was not adequate and opinions regarding optimum practice varied a lot across the groups. When evaluated about awareness regarding risk factors for cervical cancer , it was observed that doctors were significantly better informed than nurses This is an important observation as it highlights that awareness among nurses needs to be increased. The The National Programme For Prevention Of Diabetes , Cardiovascular Diseases , Cancer And Stroke (NPCDCS) clearly envisions an active role of PHC and Village Health workers in the control of cervical cancer [24] .

Primary prevention by Hpv Vaccination is fast emerging as an important strategy for prevention of cervical cancer.In developed countries HPV Vaccination is part of the national immunization programmes with girls being routinely vaccinated at 11-12 years. [25] WHO recommends routine vaccination betweeen 9 to 14 years [26] In our study 83.7% doctors were aware of hpv vaccination , while only 64.7% of nurses knew of it. This difference was again statistically significant and similar to other results.[14,27]

Table 3: Practices related to prevention of cervical cancer among study participants

Variables	Doctors N (%)	Nurses N (%)	Total N (%)	P value
Total	98 (49)	102 (51)	200 (100)	
Ever been screened for cervical cancer (Yes)	30 (30.6)	32 (31.4)	62 (31)	0.59
Cervical cancer screening for themselves in last 1 year	26 (86.7) (n=30)	24 (75) (n=32)	50 (80.6) (n=62)	0.17
Cervical cancer screening at recommended intervals (Yes)	20 (66.7) (n=30)	20 (62.5) (n=32)	40 (64.5) (n=62)	0.45
Reasons for not getting done at recommended intervals	(n=30)	(n=32)	(n=62)	
Didn't felt the need to	14 (46.6)	8 (25)	22 (42.3)	
Unaware of it	4 (13.3)	2 (6.2)	6 (9.7)	
Unavailability of good doctor	6 (20)	4 (12.5)	10 (16.1)	
Find it embarrassing	4(13.3)	6 (18.8)	10 (16.1)	
Afraid it would be painful	2 (6.7)	4 (12.5)	6 (9.7)	
Afraid of the results	0 (0)	2 (6.2)	2 (3.2)	
Uterus removed	0 (0)	6 (18.8)	6 (9.7)	
Advise to any other family member about cancer screening (Yes)	46 (46.9)	36 (35.3)	82 (41)	0.49
Consider HPV vaccination for yourself (Yes)	58 (59.2)	46 (45.1)	104 (52)	0.16
Reasons for not considering yourself for HPV vaccine	(n=40)	(n=56)	(n=96)	
Inadequate information	4 (10)	20 (35.7)	24 (25)	
Inappropriate age for me	16 (40)	14 (25)	30 (31.2)	
Not convinced about its efficacy	6 (15)	2 (3.6)	8 (8.3)	
Cost factor	14 (35)	20 (35.7)	34 (35.4)	
Willing to consider HPV vaccine for family members (Yes)	76 (77.8)	52 (51.0)	128 (64)	0.009*
Recommended HPV to others	54 (55.1)	24 (23.5)	78 (39)	0.005*
Feel important to be screened for cervical cancer (Yes)	94 (95.9)	90 (88.2)	184 (92)	0.20
*P value<0.05				

Table 3 clearly demonstrates that only a dismal 30.6% doctors and 31.4 % nurses had undergone screening despite there being a statistical difference in awareness between the two groups. Despite expectations that this cohort would be more aware and prompt in undergoing cervical screening, other studies done in health workers also show that this is not true. [3] Further, of the doctors and nurses screened , Only 26.5% doctors and 23.5% nurses had been screened within last 3 years and only 20.4% doctors and 19.6% nurses had gotten the screening done at recommended intervals indicating that even if paps test was done , it was not necessarily done within the recommended times.

The table also shows the most common cause for not having undergone screening was feeling no need to get screened (46.9% doctors and 25 % nurses) because of no perceived risk factors. 4.1% doctors stated they were unmarried and not active sexually and 5.9% nurses reported they had already undergone hysterectomy and therefore did not need screening. Only 6.1% doctors and 3.9% nurses admitted to being embarrassed in getting the screening done .Other studies have also reported very low uptake of cervical screening with similar causes cited among health personnel. [12-14, 28-30]. Swapnajaswant etal [3] reported that only 26% of the female health workers had undergone a Paps test similar to other studies. [19,31-33]

42.9 % doctors and 52.9% nurses would not even recommend getting the screening done for their family members. Similar results were observed by Oyebuode etal.[11] who reported that of the 52 women seen by gynaecologists at different times previously, only 15.4% were referred to have Pap smear. This may reflect one of the major barriers in the uptake of screening. Awareness must be generated that screening must be done even in the absence of

any risk factors as per national recommendations and gcpr guidelines.

Another statistical significant finding that emerged was that while 59.2% of doctors would be willing to consider hpv vaccination for themselves, only 45.1% of nurses were willing to do so. 77.6% doctors and 51% nurses would be willing to consider vaccinating their family members. This difference also statistically significant. It can be seen that doctors were more willing to advise HPV vaccination than paps smear testing. In fact, overall 55.1% doctors had recommended the vaccination to somebody including peers , friends and patients) while only 23.5% of nurses had done so. This indicates that despite good awareness in both groups, doctors were more likely than nurses to recommend HPV vaccination. This barrier may have a huge impact on the uptake of HPV vaccination practices as nurses are often the first point of contact for patients. Even though doctors may recommend the vaccination to girls and women, if this is not supported by the nursing staff then the desired coverage may not be achieved. Seemitha etal reported 62% medical students had good attitudes towards vaccination [34] while other studies showed poor awareness. [35]

4. Limitations

- This study was undertaken in a urban tertiary care hospital , thus the staff interviewed may have been better informed than their peers in a rural setup.
- The personnel working in the department of ob-gyn may be better informed than other departments . Future studies which include only health workers working in the department of obs & gynae may provide more accurate information.
- The age groups and marital status of the two groups varied. It is however, observed that doctors tend to get married late and have children later. Further studies removing this variable error should be undertaken.
- The sample size was small and larger studies should be undertaken for better evaluation.
- The responses were based on recall and not validated by the respondents medical records. This may lead to recall bias.

5. Conclusions

Our study concludes that though the knowledge regarding the need for cervical screening is present amongst doctors and nurses, its actual uptake is not adequate . Only 30.6 doctors and 31.4% nurses had been screened for cervical cancer despite awareness being more than 90 %. This unfortunately translates into inadequate motivation for other women also. Spreading awareness alone is insufficient without addressing the sociocultural concerns of women in our country. This study clearly demonstrates the need for addressing the misconceptions and incorrect practices of health workers. Health workers are essential for the success of our well envisioned national programmes. As society looks upto these women for support and guidance, it is imperative that they take up their part as effective role models for all women in society.

References

[1] Ferlay J, Ervik M, Lam F, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2018). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today)

[2] Ferlay J, Soerjomataram I, Ervik M, Forman D, Bray F, Dixit R, et al. GLOBOCAN 2012, Cancer Incidence and Mortality Worldwide in 2012. Lyon, France: International Agency for Research on Cancer; 2012. [Last accessed on 2015 Dec 03]. Available from: http://www.globocan.iarc.fr ,http://www.healthmetricsandevaluation.org/publications/policyreport/challenge-ahead-progress-and-setbacksbreastand-cervical-cancer.

[3] Perception and Practices on Screening and Vaccination for Carcinoma Cervix among Female Healthcare Professional in Tertiary Care Hospitals in Bangalore, India M Swapnajaswanth , G Suman , SP Suryanarayana , NS Murthy; Asian Pac J Cancer Prev, 15 (15), 6095-6098).

[4] Anttila A, Pukkala E, Söderman B, Kallio M, Nieminen P et al. (1999) Effect of organised screening on cervical cancer incidence and mortality in Finland, 1963-1995: recent increase in cervical cancer incidence. Int J Cancer 83: 59-65. doi:https://doi.org/10.1002/(SICI)1097-0215(19990924)83:1. PubMed: 10449609.

[5] Eddy DM (1990) Screening for cervical cancer. Ann Intern Med 113: 214-226. doi:https://doi.org/10.7326/0003-4819-113-3-214.)

[6] Gakidou E, Nordhagen S, Obermeyer Z (2008) Coverage of cervical cancer screening in 57 countries: low average levels and large inequalities. Plos Med 5(6): doi:https://doi.org/10.1371/journal.pmed.0050132

[7] Sankaranarayanan R, Budukh AM, Rajkumar R.Effective screening programmes for cervical cancer in low- and middle-income developing countries.Bull World Health Organ. 2001;79(10):954-62. Epub 2001 Nov 1. Review.PMID:11693978

[8] Jayaraman L, Maheshwari K, Khichi SK, Singh A, Goel S, Roy A, et al. Selfperceived risk and barriers to cervical cancer screening among patients seeking care at a tertiary care teaching hospital in Tamil Nadu. Int J Res Med Sci 2016;4:766-9)

[9] Sankaranarayanan R, Budukh AM, Rajkumar R Bull World Health Organ. 2001; 79(10):954-62. [PubMed] [Ref list])

[10] Perception and Practices on Screening and Vaccination for Carcinoma Cervix among Female Healthcare Professional in Tertiary Care Hospitals in Bangalore, India M Swapnajaswanth , G Suman , SP Suryanarayana , NS Murthy; Asian Pac J Cancer Prev, 15 (15), 6095-6098)

[11] Oyebode Tinuade et al /International Journal of Biomedical Research 2015; 6(07): 460-465. 460 IJBR (2015) 6 (07) www.ssjournals.com International Journal of Biomedical Research ISSN: 0976-9633 (Online); 2455-0566 (Print) Journal DOI:10.7439/ijbr

[12] Singh E, Seth S, Rani V, Srivastava DK. Awareness of cervical cancer screening among nursing staff in a

tertiary institution of rural India. Journal of Gynecologic Oncology. 012;23 (3):141.
[13] Gupta M YM, Agarwal N, Arora R. . Aware ness of Cervical cancer screening among para medical staff and students In an Institution of Northern India. Natl J Community Med. 2013;4 (2):4-7.)
[14] Kosambiya RJ, Gohil A, Kamdar ZN, Patel PB, Modi A. Knowledge, Attitude and Practices about Cervical Cancer and Screening among Nurses of a Tertiary Care Centre in Western India. Natl J Community Med 2018;9(6):391-395
[15] Gianfranco Damiani, Danila Basso, Anna Acampora, Caterina B.N.A. Bianchi, Giulia Silvestrini, Emanuela M. Frisicale, Franco Sassi, Walter Ricciardi,The impact of level of education on adherence to breast and cervical cancer screening: Evidence from a systematic review and meta-analysis, Preventive Medicine, Volume 81, 2015, Pages 281-289,ISSN 0091-7435, https://doi.org/10.1016/j.ypmed.2015.09.011.).
[16] Goyal A, Vaishnav G, Shrivastava A, Verma R, Modi A. Knowledge, attitude and practices about cervical cancer and screening among nursing staff in a teaching hospital. International Journal of Medical Science and Public Health. 2013;2 (2):249
[17] Awodele O, Adeyomoye AAA, Awodele DF, Kwashi V, Awodele IO, Dolapo DC. Study on cervical cancer screening amongst Nurses in Lagos University teaching Hospital, Lagos, Nigeria. J Cancer Edu 2011; 26:497-504))
[18] Mutyaba T, Mmiro FA, Weiderpass E. Knowledge, Attitude and Practices on Cervical Cancer Screening among Medical Workers of Mulago, Hospital, Uganda. BMC Med Edu.2006;6:
[19] Oranratanaphan S, Amatyakul P, Iramaneerat K, Srithipayawan S. Knowledge, attitudes and practices about the Pap smear among Medical Workers in Naresuan University Hospital. Asian Pacific Journal of Cancer Prevention 2010;11:1-4.
[20] Arulogun OS, Maxwell OO. Perception and utilization of cervical cancer screening services among female nurses in University College Hospital, Ibadan, Nigeria. Pan Afr Med J 2012;11:69)and
[21] ananthnarayan etal (Anantharaman VV, Sudharshini S, Chitra A. A cross-sectional study on knowledge, attitude, and practice on cervical cancer and screening among female health care providers of Chennai corporation, 2013. J Acad Med Sci 2012;2:124-8).
[22] Sait, Khalid. (2011). Knowledge, attitudes, and practices regarding cervical cancer screening among physicians in the Western Region of Saudi Arabia. Saudi medical journal. 32. 1155-60.)
[23] Oyedunni SA, Opemipo OM. Perception and utilization of cervical cancer screening among female nurses in University College Hospital, Ibadan, Nigeria. Pan African Medical Journal 2012;11:69
[24] Directorate General of Health Services. Ministry of Health & Family Welfare, Government of India National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS). 2017. Available from: http://dghs.gov.in/content/1363_3_NationalProgrammePreventionControl.aspx.
[25] Markowitz LE, Dunne EF, Saraiya M, et al. Human papillomavirus vaccination: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep 2014;63(No. RR-05).
[26] 241 Human papillomavirus vaccines: WHO position paper, May 2017)
[27] Naki MM, Celik H, Api O, Celik H, Kars B, Yasar E, et al. Awareness, knowledge and attituderelated to HPV infection and vaccine among non-obstetrician-gynecologist healthcare providers. J Turkish
[28] Asonganyi E Vaghasia M, Rodrigues C, Phadtare A, Ford A, et al. (2013) Factors Affecting Compliance with Clinical Practice Guidelines for Pap Smear Screening among Healthcare Providers in Africa: Systematic Review and Meta-Summary of 2045 Individuals
[29] Cyril CD, Esther E, Theresa M, Ngozi RD, Hyginus UE (2009) Improved awareness of Pap smear test may not affect its use in Nigeria: a case study of female medical practitioners in Enugu, southeastern Nigeria. Trans R Soc Trop Med Hyg 103: 852–854. doi:https://doi.org/10.1016/j.trstmh.2009.03.020.
[30] Fonn S, Bloch M, Carpenter S, Cronje H, Moise C et al. Prevalence of pre-cancerous lesions and cervical cancer in South Africa – A multicenter study. S Afr Med J, 92(2): 148-156
[31] Addah AO, Ojule JD, Fiebai PO (2012). Knowledge, attitude and practice of cervical cancer screening-Papanicolaou test (Pap smear) among female health care providers in Port Harcourt. African J, 6,74-80
[32] Thippeveeranna C, Mohan SS, Singh LR, Singh NN (2014). Knowledge, attitude and practice of the Pap smear as a screening procedure among nurses in a tertiary hospital in north eastern India. Asian Pac J Cancer Prev, 14, 849-52.
[33] Nwobodo EI, Malami SA. Knowledge and practice of cervical screening among female health workers in Sokoto, North Western Nigeria. Niger Postgrad Med J. 2005 Dec;12(4):255-7. PubMed PMID: 16380734).
[34] Seemitha Shetty, Sumathi Prabhu, Veena Shetty & Avinash K. Shetty (2019)Knowledge, attitudes and factors associated with acceptability of human papillomavirus vaccination among undergraduate medical, dental and nursing students in South India, Human Vaccines & Immunotherapeutics, DOI: 10.1080/21645515.2019.1565260)
[35] Saha A, Nag Chaudhury A, Bhowmik P, Chatterjee R (2010) Awareness of Cervical Cancer Among Female Students of Premier Colleges in Kolkata, India. Asian Pacific Journal of Cancer Prevention 11: 1085–1090.)

Author Profile

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