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Knowledge, Attitude and Acceptance of Rural Women Regarding Pap Smear Test and Self-Sampling for Hpv- A Cross-Sectional Study

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(Received: 07	October 2023	Revised: 12 November	Accepted: 06 December)
KEYWORDS Pap smear HPV self – sampling	ABSTRACT: Introduction: Cer of all cancers in In cancer or cervical among women re screening methods	vical cancer is the fourth most common cance dia. Two screening tests for cervical cancer c cancer—The PAPANICOLAU TEST (Pap 7 garding Pap smear and HPV testing is low are low, despite various efforts from the Publ	er globally. Cervical cancer makes up to 18% can help find changes that could become pre- fest or Pap smear) and the HPV. Awareness Attitude and acceptance towards cervical lic Health authorities.
Rural Women	Objectives : The or regarding Pap sme	bjective of the study was to assess the knowle ar test and HPV self-sampling	dge, attitude and acceptance of rural women
Cervical Cancer Screening	Methods: A comm among rural wom technique.271 wor attitude and accept	nunity-based cross-sectional study was condu- en. A total of 323 women aged 18-60 years nen who had previously heard about Pap sn ance questionnaire regarding Pap smear and F	cted in 3 blocks of Mathur village, TN, India were selected using a systematic sampling near tests were asked to fill the knowledge, HPV self-sampling after brief explanation.
	Results: Majority children (61.8%). smear test even on who had heard abo attitude and accept Pap smear test and relationship betwe smear among won knowledge was 34	of the participants were married (68%), belon Most of them (84%) had heard about Pap sme ce. Almost all of them (92.3%) had never he put Pap smear, 42.4% of them had inadequate ance towards Pap smear test and HPV self-sa l only 2.95% of them were ready to consider en knowledge level of the women with a hist nen with good knowledge was 79.4%, with m .6%.	ged to 25-44 age group (54.8%) and had 1-2 ar before but 90% of them had not taken Pap ard about HPV self-sampling. Among those knowledge and 63% of them had favourable mpling. 72.69% of them were willing to take HPV self–sampling. There was a significant tory of Pap smear (p<0.001). History of Pap edium knowledge was 54.5% and with weak
	Conclusions : Desp and acceptance w women regarding part in creating a	bite low level of knowledge regarding Pap vas generally positive. There is more sco g cervical cancer screening methods. Hea wareness among rural women and they sl	p smear and HPV self-sampling, attitude pe for improving the awareness of rural alth care professionals play an important hould be encouraged to do so.

1. Introduction

Cancer is a disease in which cells in the body grow out of control. Cancer is always named for the part of the body where it starts, even if it spreads to other body parts later. When cancer starts in the cervix, it is called cervical cancer. The cervix connects the vagina (birth canal) to the upper part of the uterus. The uterus (or womb) is where a baby grows when during pregnancy [1].

Various strains of the human papillomavirus, also called HPV, play a role in causing most cervical cancers [2].

Almost all cervical cancer cases (99%) are linked to infection with high-risk human papillomaviruses (HPV), an extremely common virus transmitted through sexual contact [3].

Cervical cancer is the fourth most common cancer among women globally, with an estimated 604,000 new cases and 342,000 deaths in 2020. About 90% of the new cases and deaths worldwide in 2020 occurred in low- and middle-income countries [4].

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Cervical cancer ranks as the 3rd most common cancer among women in India and the 2nd most frequent cancer among women between 15 and 44 years of age. Cervical cancer makes up to 18% of all cancers in women in India. A total of 1, 23,907 women were diagnosed with cervical cancer in India and 77,348 women died due to the disease in 2022[5]. The best way to prevent HPV is to be vaccinated before starting sexual activity [6].

Early diagnosis of cancer focuses on detecting symptomatic patients as early as possible so they have the best chance for successful treatment. Screening is a different strategy than early diagnosis. It is defined as the presumptive identification of unrecognized disease in an apparently healthy, asymptomatic population by means of tests, examinations, or other procedures that can be applied rapidly and easily to the target population [7].

Cervical cancer screening involves testing for HPV infection to detect pre-cancer and cancer, followed by treatment as appropriate. Testing is done among women who have no symptoms and may feel perfectly healthy [8]. Through regular screening and follow-up, cervical cancer can be prevented or detected at an early age. This can lead to excellent survival. Most cervical cancers are found in women who have never had a test, or it's been a while since they were screened [9].

Screening should start from 30 years of age in the general population of women, with regular screening with a validated HPV test every 5 to 10 years [10]. Two screening tests for cervical cancer can help find changes that could become pre-cancer or cervical cancer—The PAPANICOLAU TEST (Pap Test or Pap smear) looks for pre-cancers, cell changes on the cervix that might become cervical cancer if they are not treated appropriately. The HPV test looks for the virus that can cause these cell changes [11].

The Pap test is the most commonly available cervical cancer early-detection test. The test involves a gynaecological examination by a medical provider, who takes a sample of cells from the cervix. The sample is then sent to a laboratory for analysis. The Pap test detects changes in the cervical cells and can identify precancerous or cancerous lesions. PAP test results are usually provided to women, as normal or abnormal Pap test results [12].

A new method of HPV testing can be performed on vaginal samples collected by the patient in a process known as self-sampling. The swab used to collect the sample has been likened to a small mascara brush or a COVID test swab, which is then sent to a lab for analysis. Cervical cancer self-sampling is compatible with the WHO's guidelines on self-care to improve health and well-being [13].

Self-sampling for HPV can help reach a global target of 70% coverage of screening by 2030. Women may feel more comfortable taking their own samples, rather than going to see a health worker for cervical cancer screening [14].

Only 2 percent of Indian women have ever undergone screening, relative to 63 percent of women in high-income countries[15] Previous studies conducted on knowledge regarding Pap smear screening among women emphasized women's limited knowledge of cervical cancer and Pap smears[16,17].

The results of various studies conducted on the attitude of women regarding Pap smear screening reported mixed results. Some studies showed women had favourable attitude [18, 19] and some showed unfavourable attitudes about Pap smear screening [20, 21].

Regarding Self-sampling for HPV, many studies were conducted previously and these studies concluded that knowledge, attitude, and acceptance of self-sampling was poor to moderate in women [22, 23] Self-sampling for HPV testing was found to be effective in the prevention of cervical cancer [24, 25, 26]. So this present study was conducted to study the knowledge, attitude, and acceptance of rural women regarding PAP Smears and Self-sampling for HPV.

2. Objectives

The objective of the study was to assess the knowledge, attitude and acceptance of rural women regarding Pap smear test and HPV self-sampling.

3. Methods

This observational, cross-sectional study was conducted in Mathur village of Pudukottai dt, TN, India, between March and April 2023. Mathur village is located on the outskirts of Pudukottai district, TN. Prior permission was obtained from the competent authority for conducting the study. www.jchr.org

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Study population-

The study population included women 18-65 years old residing in Mathur village at the time of the study. Participants were selected based on the inclusion and exclusion criteria. Women who belong to the age group of 18-65 years and those who are willing to participate in the study were included. A purposive sampling method was used to select three blocks of the village. A sample size of 323 participants was found to be statistically adequate.108 participants were selected from two blocks each and 107 participants from one block. A systematic sampling technique was used to realize a representative sample from the community. Every third person starting from the first person in the queue willing to take part in the study (using the lottery method) was selected until the calculated sample size was reached per block.

Data collection-

Data was collected from the participants using a selfstructured questionnaire developed by the researcher after referring to various standardized questionnaires used to study the knowledge attitude and acceptance of Pap smear test and Self-sampling for HPV. Questionnaires were prepared in the native language, Tamil. Participants were explained about the study's purpose and written consent was obtained. For participants those who couldn't read and understand Tamil, questions were explained to them and their response was recorded. Knowledge, attitude and acceptance questionnaires were completed by only participants those who had heard about it previously. All the participants enrolled in the study gave their responses willingly and data collection was completed as per plans.

Study Instruments-

Study Instruments used for this study were divided into 2 sections.

Section A- Socio-Demographic characteristics.

Section B- Knowledge, attitude and acceptance Questionnaires regarding Pap smear test and self-sampling for HPV.

Study instruments were finalized after obtaining content validity from Gynaecologists and experts from this field. The knowledge questionnaire consisted of 15 questions with three responses as answers (True, False, and Unsure). Each correct response was awarded one point. Score of 11-15 was considered as adequate level of knowledge, 6-10 as a moderate level of knowledge, and 0-5 as inadequate level of knowledge. The attitude and acceptance questionnaire consisted of 10 items and an 8-10 score was considered as favourable attitude and a 0-7 score as an unfavourable attitude.

4. Results

A total of 323 participants participated and 323 questionnaires were completed with a response rate of 100%.

Socio-Demographic characteristics-

Table 1 –Frequency and percentage distribution ofSocio-demographic characteristics of study participants.(N=323)

Variables and categories	Frequency (n)	Percentage (%)
Age group		
18-24	68	21.0
25-44	177	54.8
45-65	78	24.2
Marital status		
Single	104	32
Married	219	68
Educational status		
No formal education	22	6.7
Primary education	63	19.4
Secondary education	114	35.4
Higher Education	124	38.5
Religion		
Hindu	263	81.6
Christian	54	16.7
Muslim	6	1.7
Parity		
0	33	10.2
1-2	200	61.8
3 and above	90	28
Contraception Methods		

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Variables and categories	Frequency (n)	Percentage (%)
Condoms	103	32
Oral Contraceptives	90	27.8
None	130	40.2
Occupation		
Employed	68	21
Housewife	193	59.8
Student	62	19.2

Table 1 shows the Socio-Demographic characteristics of the study participants. The majority (54.8%) of the participants belonged to 25-44 years age group, whereas most of them were married (68%). Almost equal number of participants had undergone secondary (35.4%) and higher Education (38.5%). The majority of the participants were Hindus (81.6%) and the highest percentage of them have 1 or 2 children (61.8%).40.2% of the study participants do not use any sort of Contraceptives. Majority of them are unemployed (59.8%).

Table 2- Overall Knowledge of study participants aboutPap smear and HPV self-sampling. (N=323)

Statement	Yes	No
Ever heard of a Pap	271(84%)	52(16%)
smear test		
Taken Pap smear test at	32 (10%)	291 (90%)
least once		
Ever heard of the HPV	25 (7.7%)	298 (92.3%)
self-sampling test		

Table 2 shows the overall knowledge of study participants about Pap smear and HPV self-sampling. Out of 323 participants, only 271 (84%) participants had heard about it previously. Only 32 (10%) participants have undergone Pap smear tests before and only 25 (7.7%) of them have heard about HPV self-sampling. Only 271 participants who had heard about Pap smear completed the knowledge, attitude and acceptance questionnaire. For those who claimed that they had heard



about Pap smear, the investigator explained briefly about HPV self-sampling and then they were asked to fill the attitude and acceptance questionnaire about HPV self-sampling.

Frequency and percentage Distribution of Responses to knowledge statements regarding Pap smear test among rural women are tabulated in Table 3. Majority of the participants (92.6%) knew that Pap smear test detect cervical cancer, whereas only 36.1% of them knew that Pap smear should be done once in three years. More than half of the participants (74.1%) indicated that Pap smear test sample is taken from the cervix of a woman and majority (57.1%) of them were not sure that all married women should undergo Pap smear test. A majority (61.1%) of the participants had a perception that Pap smear tests are very painful.79.3% of the participants knew that Pap smear can be done in OPD setup. More than half of the participants (60.1%) think that Pap smear should be done only after a physician prescribes.86.3% of them indicated that Medical Professionals can only collect Pap smear samples.

 Table 4- Distribution of Knowledge scores of rural women regarding Pap smear test.

Level Of Knowledge	Frequency (%)
Adequate level of knowledge (11-15)	59 (21.77)
Moderate level of knowledge (6-10)	97 (35.79)
Inadequate level of knowledge (0-5)	115 (42.4)

Table 4 shows the level of knowledge of rural women regarding Pap smear. Majority of the study participants (42.4%) had inadequate level of knowledge, whereas 35.79% of them had a moderate level of knowledge and only 21.77% of the study participants had adequate level of knowledge. There was a significant relationship between knowledge level of the women with a history of Pap smear (p<0.001). History of Pap smear among women with adequate knowledge was 79.4%, with moderate knowledge 54.5% and with inadequate knowledge 34.6%.

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Table 3-Frequency and percentage distribution of responses to knowledge statements regarding Pap smear test among rural women. (N=271)

Statements	True	False	Unsure
Pap smear test detects cervical cancer.	251(92.6)*	-	20(7.3)
Early detection of cervical cancer has a good effect on the outcome of treatment.		-	73(27)
Pap smear test should be done once in 3 years.	98(36.1)*	55(20.3)	118(43.5)
Pap smears help detect other sexually transmitted diseases.	22(8.11)	98(36.1)*	151(55.79)
Pap smear detect all types of Female genital cancers.	78(28.78)	61(22.50)*	132(48.7)
Pap smear test sample is taken from the cervix of the women.	201(74.1)*	38(14%)	32(11.9)
All married women should take Pap smear test.	62(22.8)*	54(19.9)	155(57.1)
Pap smear test is done free of cost in government hospitals.	87(32.1)*	48(17.7)	136(50.2)
Pap smear test need not be repeated in the future if test results are normal.		32(11.8)*	85 (31.3)
Pap smear test is a very painful procedure.		62(22.8)*	42(15.4)
Pap smear test can be done in an OPD setup.	215(79.3)*	20(7.3)	36(13.3)
Pap smear test should not be done during menstrual cycle.	196(72.3)*	23(8.48)	52(19.2)
Women should not have sex a day before undergoing Pap smear test.	84(30.9)	24(8.85)*	163(60.24)
Pap smear should be done only if the Physician prescribes.	163(60.1)	56(20.66)*	52(19.2)
Medical Professionals can only collect Pap smear samples.		-	37(13.6)

*- Correct response

Table 5-Frequency and percentage of agreement with each of attitude and acceptance statements about Pap smear and HPV self-sampling. N=271.

Statements	Yes	No
I will take Pap smear test.	197(72.69)*	74(27.3)
Taking a Pap smear test is embarrassing.	171(63)	100(37)*
Discussing about Pap smear test with family members is easy.	82(30.2)	189(69.8)*
Pap smear is unnecessary for healthy individuals.	189(69.8)	82(30.2)*
I am afraid of the results post a Pap smear test.	163(60.1)	108(39.9)*
I will take Pap smear only if I have symptoms.	158(58.3)	113(41.69)*
I will recommend Pap smear test to others.	20(75.6)*	66(24.4)
Self–sampling for HPV is not easy.	259(95.57)	12(4.4)*
I will consider self-sampling for HPV if provided with the kit.	8(2.95)*	263(97.04)
Will discuss about HPV self-sampling with my spouse.	121(44.64)	150 (55.35)

*-Favourable attitude

Frequency of agreement with each of the attitude and acceptance statements about Pap smear and HPV self-sampling were tabulated in Table 5. Majority (72.69%)

of the participants are willing to take Pap smear test in the future. The majority (63%) of them think that taking a Pap smear test is embarrassing and most of them

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Table 6 – Distribution of attitude and acceptance scoresof rural women regarding Pap smear and HPV self-
sampling.

Attitude and Acceptance	Frequency (Percentage)
Favourable (8-10)	171 (63)
Unfavourable (0-7)	100 (37)

Table 6 depicts that more than half of the participants (63%) had favourable attitude towards Pap smear and HPV self-sampling. Women with favourable attitudes had significantly higher history of Pap smear compared to women with unfavourable attitudes (44% vs. 12.6%, p<0.001). There was a significant relationship between the knowledge and attitudes (p=0.01). Favourable attitude in women with adequate knowledge was 78.8%, with moderate knowledge 65.8%, and with inadequate knowledge 36 %.

5. Discussion

The results of the study show that 84% of the study participants had heard about Pap smear. Near similar pattern of awareness of women regarding Pap smear was found in previous studies. Prevalence of awareness about Pap smear was found in 59% of the study participants in a study conducted among pre-marital Muslim women [27]. Another study conducted in Nigeria showed that 42.2% of the study participants knew about Pap smear screening [28].Contrary to this result, only 14% of the study participants had heard about Pap smear in a study conducted in rural India among reproductive-aged females[29].

This study results showed that only a meager percentage (10%) of the study participants had had Pap smear test previously. The finding of this present study is supported by various previous studies. The results of a study conducted among Asian immigrant women found out



that 76.5% of the study participants never had a Pap smear test [30]. Only two women had undergone Pap smear in a total sample of 255 participants in the Southern region of Saudi Arabia [31].

Only 7.7% of the study population in this present study had heard about HPV self-sampling. This finding of this study is strongly supported by the results of various previous studies. Studies conducted in Chengdu, China, Canada, and Nigeria found out that only 29.94 %, 7 %, and 1% of the study population respectively had ever heard of HPV self-sampling [32, 33, and 34].

The overall level of the knowledge level of the study participants in this study regarding Pap smear and HPV self-sampling was poor. Majority of the participants had inadequate level of knowledge (42.4%) and only 21.77% of them had adequate level of knowledge regarding Pap smear and HPV self-sampling. This finding of the study is in accordance with the results of a study conducted in Indonesia which concluded that only 12.2% of the study participants had sufficient knowledge regarding Pap smear test [35]. Various studies conducted to study the level of knowledge among women regarding Pap smear screening also had similar results. Another study conducted in Indonesia found out that more than half of the study population (51.9%) lack knowledge regarding Pap smear screening [36]. Studies conducted in Egypt and Saudi Arabia also gave similar results in line with the current study findings. These studies concluded that only 25.8 % and 21.2% of the total participants respectively had adequate knowledge about Pap smear [37, 38]. On contrary to the findings of this study, a study conducted among female health workers in a general hospital, in Nigeria showed that 82.5% of the study participants had adequate level of knowledge [39]. These results show that Health care workers are more aware of Pap smear screening and being the advocates of health, they will be able to educate the common people about Pap smear screening which is a positive sign.

In this study, majority of the study participants (92.6%) were aware of the fact that Pap smear detects cervical cancer.74.1% knew that Pap smear sample was taken from the cervix. Response for most of the knowledge statements was unsure from the participants.43.5 % of participants were unsure that Pap smear test should be done once in three years, whereas more than half of them (55.79%) were unsure whether Pap smear can detect

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sexually transmitted diseases. Only 22.8% of the women knew that all married women should take Pap smear tests and more than half of them (61.6%) had the perception that Pap smear test is a very painful procedure. Majority of them (79.3%) of them knew that Pap smear can be done as an OPD procedure. More than half of them (60.1%) were in the perception that Pap smear should be done only if a Physician prescribes it. As a positive sign majority of them (86.3%) knew that only medical professionals can collect Pap smear samples. These findings suggest that rural women are unsure of the procedures and practices of Pap smear and they don't have a clear picture of Pap smear tests. Educating women regarding pap smear tests and their importance is very much needed because Pap smear is a more reliable and dependent method for cervical cancer screening.

63% of the study participants showed favourable attitude and acceptance towards Pap smear and self-sampling for HPV which is a welcoming sign and this shows that women are willing to test themselves for cervical screening which in turn helps in decreasing cervical cancer rates. Perception of women regarding Pap smear screening was found to be good in a study conducted in Nigeria [40].45.8% of the study respondents had a positive attitude towards Pap smear tests in a study conducted in Egypt [37] The results of previous studies conducted in Hail City, Saudi Arabia and Malaysia suggested that 47.0% and 70.8% of participants respectively believed that Pap smear test is a useful test and would undergo the test [38, 41]

In the present study majority of the participants (72.69%), are willing to take pap smear test, but most of them (63%) of them feel taking Pap smear test is embarrassing. This shows the two sides of the coin that should be addressed in order to increase the rate of Pap smear tests. A similar study conducted in an urban slum in Lagos, Nigeria, found out that 88.9% of the study participants were willing to undergo Pap smear tests, which supports the findings of the present study [42]. More than half of the study participants have a perception that Pap smear is unnecessary for healthy individuals (69.8%) and they are afraid of the test results (60.1%). This study's encouraging and positive result is that 75.6% of the study participants responded that they would recommend Pap smear tests to others. Attitude and acceptance of HPV self-sampling is very poor. Even after explaining briefly about HPV self-sampling, most of the study participants (97.4%) were not willing to consider HPV self-sampling for cervical screening.95.7% of the participants think that self-sampling for HPV is not easy and more than half of them (55.35%) are not even ready to discuss HPV self-sampling method with their spouse. This study result shows that the study participant's attitude and acceptance towards HPV self-sampling is very poor when compared to that of Pap smear screening. Previous study results on this topic had mixed results. In studies conducted in South Africa, Malaysia, Mexico and Greece 67.9% concluded that 57.7%, 83%, 100%, and 67.9% of the study participants respectively were willing to consider self-sampling for HPV[43,44,45,46] These results show that attitude and acceptance of selfsampling for HPV is attributed to various factors such as ethnicity, race, cultural differences and country of origin.

6. Conclusion

In general, the results of this present study indicate inadequate knowledge of rural women regarding Pap smear test and HPV self-sampling. Rural women in general exhibit an unfavourable attitude towards Pap smear test and HPV self-sampling. Despite various efforts from the authorities awareness regarding Pap smear test is very low, which is a major concern. Healthcare workers report adequate knowledge about Pap smears. They should be encouraged to educate rural women regarding Pap smear and increase the rate of Pap smear tests done.HPV self -sampling being a reliable and convenient method, is very less popular among women. Rural women should be sensitized regarding Cervical screening methods and should be encouraged to undergo self-sampling for HPV. Competent authorities should develop strategies, health programs, and policies to increase cervical screening among women and in turn, decrease the prevalence rate of cervical cancer.

References

- 1. Basic Information About Cervical Cancer, Centres for disease control and prevention, Available athttps://www.cdc.gov/cancer/cervical/basic_info/inde x.htm
- Cervical cancer, Mayo Clinic, Available athttps://www.mayoclinic.org/diseasesconditions/cervical-cancer/symptoms-causes/syc-20352501
- 3. Cervical cancer, Health topics, Worlds Health Organization, available at

www.jchr.org

JCHR (2023) 13(6), 87-96 | ISSN:2251-6727



https://www.who.int/health-topics/cervicalcancer#tab=tab_1

- Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2021:71:209–49. doi:10.3322/caac.21660.
- Human Papillomavirus and Related Cancers, Fact Sheet 2023, HPV information centre, Available athttps://hpvcentre.net/statistics/reports/IND_FS.pdf
- Human Papillomavirus, Pan American health organization, Available athttps://www.paho.org/en/human-papillomavirushpv-vaccine
- 7. Promoting cancer early diagnosis, World Health Organisation, Available at https://www.who.int/activities/promoting-cancerearly-diagnosis
- 8. Cervical Cancer, World Health Organisation, Available at https://www.who.int/news-room/factsheets/detail/cervical-cancer
- Cervical cancer-early detection, diagnosis and treatment, American Cancer Society, Available athttps://www.cancer.org/cancer/types/cervicalcancer/detection-diagnosis-staging.html
- 10. Cervical cancer, Fact sheets, World Health Organisation, Available at https://www.who.int/news-room/factsheets/detail/cervical-cancer
- 11. Cervical Cancer, Basic information, Centres for disease control and prevention, Available at https://www.cdc.gov/cancer/cervical/basic_info/prev ention.htm#:~:text=The%20most%20important%20t hings%20you,test%20results%20are%20not%20nor mal.
- 12. Early Detection tests to prevent Cervical cancer, Fact sheet 4, Pan American Health organization,file:///C:/Users/ADMIN/Downloads/V PH-FS4-Eng-Web-27SEP.pdf
- 13. Self-care intervention, HPV Self-sampling, World Health Organization, Available athttps://www.ippf.org/featured-perspective/choiceself-sample-revolutionizing-cervicalcancerscreening#:~:text=What% 20is% 20cervical%2

Ocancer%20self,to%20a%20lab%20for%20analysis

- WHO Recommendations on Self -care interventions, Human Reproduction program, WHO, Available at https://www.who.int/publications/i/item/WHO-SRH-23.1
- 15. Easing the cervical cancer disease burden in India, Available at https://www.thinkglobalhealth.org/article/easingcervical-cancer-disease-burdenindia#:~:text=%E2%80%9CIt%20is%20because%2 Othey%20examine,women%20in%20high%2Dinco me%20countries.
- Gwavu Z, Murray D, Okafor UB. Perception of Women's Knowledge of and Attitudes towards Cervical Cancer and Papanicolaou Smear Screenings: A Qualitative Study in South Africa. *Healthcare*. 2023; 11(14):2089. https://doi.org/10.3390/healthcare11142089.
- 17. Rahma Al Kindi, Hana Al Sumri, Tasneem Al Muhdhoori et al. Knowledge of Cervical Cancer Screening among Omani Women Attending a University Teaching Hospital: A Cross-Sectional Study, 25 September 2023, PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-3320515/v1]
- Omoyeni O, Tsoka-Gwegweni J. Knowledge, attitudes and practices of cervical cancer screening among rural women in KwaZulu-Natal, South Africa. Pan Afr Med J. 2022 Jul 7; 42:188. Doi: 10.11604/pamj.2022.42.188.26172. PMID: 36212930; PMCID: PMC9508371.
- 19. Tolosko, Jacqueline Ann; Beauchesne, Michelle DNSc; Rancatore. Knowledge, attitudes, and practice of the Pap smear test in female college students attending a global university in the United States. Journal of the American Association of Nurse Practitioners 35(5): p 322-329, May 2023. | DOI: 10.1097/JXX.00000000000846
- Mohamed, M.L., Tawfik, A.M., Mohammed, G.F. *et al.* Knowledge, Attitude, and Practice of Cervical Cancer Screening, and HPV Vaccination: A Cross-Sectional Study among Obstetricians and Gynaecologists in Egypt. *Maternal Child Health J* 26, 565–574 (2022). https://doi.org/10.1007/s10995-021-03352-8
- 21. Olubodun, T., Balogun, M.R., Odeyemi, K.A. *et al.* Effect of social marketing on the knowledge, attitude, and uptake of pap smear among women

www.jchr.org

JCHR (2023) 13(6), 87-96 | ISSN:2251-6727



- 22. Eche, M.T., Vermaak, K. Knowledge, attitude and practice of female university students regarding human papillomavirus and self-sampling in KwaZulu-Natal, South Africa: a cross-sectional survey. BMC Women's Health 22, 58 (2022). https://doi.org/10.1186/s12905-022-01634-z.
- Fahrni, M.L., Azni, M.Z., Rusdi, N.S.M. et al. Impact of university students' awareness and attitudes on vaccination practices for human papillomavirus, and perception on self-sampling for cervical cancer screening. J of Pharm Policy and Pract 15, 73 (2022). https://doi.org/10.1186/s40545-022-00471-7.
- 24. Li J, Wu R, Qu X, Huang X, Li L, Lin Z, Zhang Z, Deng J, Liu R, Zhao X, Zhang S, Lin B, An R, Zhao C, Li M, Zhao Y, and Wei L (2022) Effectiveness and feasibility of self-sampling for human papillomavirus testing for internet-based cervical cancer screening. Front. Public Health 10:938272. Doi: 10.3389/fpubh.2022.93827.
- Tatara T, Wnuk K, Miazga W, Świtalski J, Karauda D, Mularczyk-Tomczewska P, Religioni U, Gujski M. The Influence of Vaginal HPV Self-Sampling on the Efficacy of Populational Screening for Cervical Cancer—an Umbrella Review. *Cancers.* 2022; 14(23):5913.

https://doi.org/10.3390/cancers14235913.

- 26. Ngu S-F, Lau LSK, Li J, Wong GCY, Cheung ANY, Ngan HYS, Chan KKL. Human Papillomavirus Self-Sampling for Primary Cervical Cancer Screening in Under-Screened Women in Hong Kong during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health.* 2022; 19(5):2610. https://doi.org/10.3390/ijerph19052610.
- Baharum NN, Ariffin F, Isa MR, Tin ST. Health Literacy, Knowledge on Cervical Cancer and Pap Smear and Its Influence on Pre-Marital Malay Muslim Women's Attitude towards Pap Smear. Asian Pac J Cancer Prev. 2020 Jul 1; 21(7):2021-2028. Doi: 10.31557/APJCP.2020.21.7.2021. PMID: 32711428; PMCID: PMC7573396.
- 28. Ijezie AE, Johnson OE. Knowledge of Cervical Cancer and the Uptake of the Papanicolaou Smear Test among Public Secondary School Teachers in

Akwa Ibom State, Nigeria. Niger Med J. 2019 Sep-Oct; 60(5):245-251. Doi: 10.4103/nmj.NMJ_120_19. Epub 2019 Nov 26. PMID: 31844353; PMCID: PMC6900900.

- 29. Manisha Sharma, Chandra Shekhar Kapoor, Knowledge and awareness regarding HPV infection and PAP smear screening in reproductiveaged females of rural India, Clinical Epidemiology and Global Health, Volume 8, Issue 2,2020, Pages 628-631, ISSN 2213-3984.
- Yong-Sook Eo, Ji-Soo Kim, Associations of health belief and health literacy with Pap smear practice among Asian immigrant women, European Journal of Oncology Nursing, Volume 42, 2019, Pages 63-68, ISSN 1462-3889.
- Dhaher EA. Knowledge, Attitudes, and Practices of Women in the Southern Region of Saudi Arabia Regarding Cervical Cancer and the Pap Smear Test. Asian Pac J Cancer Prev. 2019 Apr 29;20(4):1177-1184. Doi: 10.31557/APJCP.2019.20.4.1177. PMID: 31030492; PMCID: PMC6948894.
- He L, He J. Attitudes towards HPV self-sampling among women in Chengdu, China: A cross-sectional survey. Journal of Medical Screening. 2020; 27(4):201-206. doi:10.1177/0969141319895543
- 33. Kraut, Roni Y. MD, MSc; Manca, Donna MD, MCISc; Lofters, Aisha MD, PhD; Hoffart, Kaili MD; Khan, Uzma MD; Liu, Stephanie MD, MSc; MD: Babenko. Rehmani. Jasmine Oksana PhD. Attitudes Toward Human Papillomavirus Self-Sampling in Regularly Screened Women in Edmonton, Canada: A Cross-Sectional Study. Journal of Lower Genital Tract Disease 25(3): p 199-204, July 2021. DOI: 10.1097/LGT.000000000000610
- Believe, O., Omosivie, M., Soter, A., & Adekunbiola, B. (2022). Effect of Health Education on the Knowledge of Cervical Cancer, Human Papillomavirus and Self-sampling Among Women in a Low-Resource Setting. *European Journal of Medical and Health Sciences*, 4(3), 145–151. https://doi.org/10.24018/ejmed.2022.4.3.1316
- 35. Winarna, N. B. A., & Suratini, L. R. (2022). Correlation between knowledge level and mother's motivation to do Pap smear screening. International Journal of Health Science and Technology, 3 (3) 2022, 45-53.



www.jchr.org

JCHR (2023) 13(6), 87-96 | ISSN:2251-6727



- 36. Nurprilinda M, Gultom M. Relationship Between Mother's Level of Knowledge About Cervical Cancer in Performing Pap Smear Screening Tests in Kampung Rawa Panjang Bekasi in 2016. JDDT [Internet]. 15Apr.2022 [cited 27Nov.2023]; 12(2-S):40-8. Available from: https://jddtonline.info/index.php/jddt/article/view/52 63.
- Mohamed, N. S., & Hussein, A. A. (2022). Female Employee Knowledge, Attitude toward Pap Smear Screening: An intervention study. *Assiut Scientific Nursing Journal*, 10(28.), 169-177.
- Alshammiri SM. Knowledge and attitudes of cervical cancer screening among female high school teachers in Hail city: A cross-sectional study. J Family Med Prim Care. 2022 Oct; 11(10):6390-6394. Doi: 10.4103/jfmpc.jfmpc_917_22. Epub 2022 Oct 31. PMID: 36618214; PMCID: PMC9810974.
- 39. Edward, M. I., Adumaza, F. B., Adebada, H. O., & Bejide, E. O. Effect of Previous Information on Cervical Cancer on Perception and Acceptability of Pap Smear Screening among Female Health Workers in Selected Departments of General Hospital, Idanre, Ondo State, Nigeria.
- 40. Tope Olubodun, Oluwakemi Ololade Odukoya , Mobolanle Rasheedat Balogun, "Knowledge, attitude and practice of cervical cancer prevention, among women residing in an urban slum in Lagos, South West, Nigeria", Pan African medical journal, Vol. 32 No. 1 (2019), doi:10.11604/pamj.2019.32.130.14432.
- 41. Tg. Faten Nurjihan, Tg. Abdul Rahman, Nor Azlina A. Rahman, Mohd Affendi Mohd Shafri, Mainul Haque, "The Knowledge, Attitude, and Practice Regarding Pap Smear, Cervical Cancer, and Human Papillomavirus among Women Attending a Mother and Child Health Clinic in Kuantan, Malaysia", Indian J Med Paediatr Oncol 2019; 40(02): 193-200.
- Olubodun, T., Balogun, M.R., Odeyemi, K.A. *et al.* Effect of social marketing on the knowledge, attitude, and uptake of pap smear among women residing in an urban slum in Lagos, Nigeria. *BMC Women's Health* 22, 42 (2022). https://doi.org/10.1186/s12905-022-01620-5
- 43. Eche, M.T., Vermaak, K. Knowledge, attitude and practice of female university students regarding human papillomavirus and self-.sampling in KwaZulu-Natal, South Africa: a cross-sectional

survey. *BMC* Women's Health **22**, 58 (2022). https://doi.org/10.1186/s12905-022-01634-z

- 44. Su Pei Khoo, Wen Tzien Lim, Reena Rajasuriar, Nazrila Hairizan Nasir , Patti Gravitt; Yin Ling Woo, "The Acceptability and Preference of Vaginal Self-sampling for Human Papillomavirus (HPV) Testing among a Multi-ethnic Asian Female Population," Cancer Prev Res (Phila) (2021) 14 (1): 105–112.
- Rodríguez GMG, Ornelas OAO, Vázquez HMG, Esquivel DSS, Champion JD. Attitude and Acceptability of the Self-Sampling in HPV Carrier Women. Hispanic Health Care International. 2022; 20(1):40-43. Doi: 10.1177/15404153211001577. Epub 2021 Apr 19. PMID: 33866830.
- 46. Kimon Chatzistamatiou, Thomas Vrekoussis, Athena Tsertanidou, Theodoros Moysiadis, Evangelia Mouchtaropoulou, Konstantinos Pasentsis, Anastasia Kitsou, Viktoria Moschaki, Maria Ntoula, Paraskevi Zempili, Despina Halatsi, Theoni Truva, Vaia Piha, Georgia Agelena, Alexandros Daponte, Polyxeni Vanakara, Minas Paschopoulos, Theodoros Stefos, Vasilis Lymberis, Emmanuel N. Kontomanolis, Antonis Makrigiannakis, Efthimios Deligeoroglou, Theodoros Panoskaltsis, George Adonakis, George Michail, Kostas Stamatopoulos, and Theodoros Agorastos.Acceptability of Self-Sampling for Human Papillomavirus-Based Cervical Cancer Screening. Journal of Women's Health.Nov 2020.1447-1456.http://doi.org/10.1089/jwh.2019.8258