

Perception of Cervical Cancer Screening Program among Healthcare Workers in a District of Sri Lanka: A Qualitative Study

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Abstract

Background: In 1998, conventional papanicolaou smear screening was included in the Well Woman Clinic (WWC) program as a cervical cancer screening method. The objective of the study was to explore the perception of cervical cancer screening programs among healthcare workers in a district of Sri Lanka.

Method: Focus group discussion (FGD) sessions (n=4) and In-depth interviews (n=10) were used to collect data. Eight Public Health Midwives (PHMM) were selected for one FGD session. Public Health Midwives for each focus group were selected from MOH areas according to their seniority and the sector of community representation. Key Informants were selected among health care workers, who engaged in the cervical cancer screening program. A convenient sampling technique was used to select participants. Triangulation methodology was used to improve the quality of the information. Descriptive codes were identified as common themes and categories. Codes and categories were revised repeatedly until they gave an accurate representation of the data gathered. Finally, an amalgamated list of codes was developed with FGDs. In the last summary results, were prepared. The analysis was made by manual content.

Results: Majority of the participants were Sinhalese (n=41, 97.6%), Buddhist (n=39, n=92.9%) and over 40 years of age (n=31, n=73.8%). Some had >20 years of service in the field(n=14, n=33.3%).Some participants mentioned the low sensitivity of pap smears, unsatisfactory smears, and reporting delay as disadvantages of the pap smear screening method. Increase community awareness, supervision of WWC activities, and conduction of mobile clinics indicated as pathways to improve the coverage by participants. Healthcare workers expressed their positivity for HPV/DNA test as its high sensitivity, while the majority stated to improve the coverage by vaginal specimens.

Conclusions: Increase community awareness, supervision of activities, conducting mobile clinics to cover hard to reach population, and providing mobile pap kits were mainly stated to improve the quality of the program. Healthcare workers in the Kalutara district were highly accepted the HPV/DNA new screening test for quality improvement and to increase the coverage of the program.

Keywords: Cervical cancer screening; Healthcare workers; Perceptions

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Introduction

Cervical cancer is an abnormal growth in the cells of the lower part of the female uterus (cervix) that connects to the vagina and most cervical cancers are originate from there^[1]. According to the incidence rate cervical cancer is the 2nd leading cause of female cancer in Sri Lanka and annually thousand seven hundred and twenty-one new cases of cervical cancers are diagnosed and 690 women have died from the disease^[2].

Cervical cancer screening is a secondary preventive strategy of early detection of abnormal tissues from the cervix before the development of cervical cancer. In 1996, the concept of the Well Woman Clinic (WWC) program was introduced to Sri Lanka to screen women for some selected non-communicable diseases and visual inspection was the method for cervical cancer screening. In 1998, conventional papanicolaou smear screening was included in the WWC program as a cervical cancer screening method.

After 20 years of existence of the program, in contrast to the vigorous preventive measures, there is no marked reduction of incidence, morbidity, and mortality of cervical cancer in Sri Lanka. Therefore, the cervical cancer prevention program needs to be reviewed with special attention.

Pap smear has relatively low sensitivity (47%-62%), and the specificity also varies between 60-95%^[3]. There is a lag period on average of 6-8 weeks between smear taking and report delivery^[4] but sometimes, the gap may be even longer^[5] since the cyto-screener and the pathologists in certain centers are overloaded with their routine work, which leads to accumulation of unscreened slides which are called backlogs^[5].

Another major drawback of the present program is the low coverage. National 35 year age cohort WWC coverage for 2016 was 52.8%^[6], while the recommended target coverage for the program is 80%^[5].

At present, HPV/DNA screening is used as a cervical cancer screening method in some developed countries. HPV/DNA screening can be used as a primary screening method followed by cytology i.e. HPV/DNA test with cytology triage^[7]. The average sensitivity & specificity of the HPV/DNA test in 35 year age cohort women are 89% and 90% respectively^[8].

The association between the level of knowledge and practice of screening is significant^[9]. There was a significant increase in overall knowledge with higher levels of education. A vast majority of the PHMM had an above-average overall knowledge and positive attitude towards cervical cytology screening and identified it as a screening method^[10]. Strengthening health education interventions for female healthcare workers is essential, as they play a major role in communicating health behaviors to the general public^[11]. The objective of the study was to explore the perception of cervical cancer screening programs among healthcare workers in a district of Sri Lanka.

Methods

Two qualitative research techniques were used for the study.

- i. Focus Group Discussion (FGD).
- ii. In-Depth Interviews

Four focus group discussion sessions were carried out during January 2019. The first session was conducted as a pilot test.

There were no significant alterations, therefore it was considered for the analysis. The study population comprised of Public Health Midwives (PHMM) who were attached to MOH offices in Kalutara district.

A conceptual framework for qualitative inquiries was developed based on the literature^[12,13]. Using this conceptual framework a moderator guide to facilitate the FGD was developed for this study with the assistance of experts and reviewed by a panel of experts to determine the correct question (supplementary file 1). The Panel of experts has consisted of Two Consultant Community Physicians, one Consultant Histopathologist, one Medical Officer at Gender and Women's Health Unit, Family Health Bureau. The key component of the conceptual framework was six appropriate and informative questions as mentioned below;

- What do you understand about methods of cervical cancer screening?
- What do you think about the cervical cancer screening program in Sri Lanka?
- What are the existing problems in the cervical cancer screening program in Sri Lanka?
- What do you think about HPV/DNA screening test as a cervical cancer screening method?
- Was this an appropriate summary?
- Did you forget something?

Venues of FGD sessions were identified according to the accessibility and comfort of participants from MOH areas in Kalutara district. Four venues were identified for four FGDs. Eight PHMM were selected by convenience sampling technique for one FGD session, one month before the conduction of FGD. Public Health Midwives were informed of the venue and the time for the discussion. Public Health Midwives for each focus group were selected from MOH areas according to their seniority and the representation of the mixture of urban and rural communities.

When selecting PHMM, attention was paid not to interrupt their routine duty activities and preferred less traveling to reduce the inconvenience of traveling and to improve participation but this may cause the reduction of representativeness of the study sample to some extent. Before data collection, informed consent was obtained from the selected PHMM. Each FGD was carried out on a day when clinics were not held and was convenient for PHMM, who had participated in the study. A properly ventilated and lighted place was selected to conduct the session in the venue selected.

The first author, who had undergone advanced training on conducting FGDs, was the moderator of the FGDs. One science graduate was recruited as an assistant moderator to give background support by arranging the meeting room, taking records, handling distractions, and debriefing with the moderator after each session. Non-verbal messages were taken to notes. All three FGDs were audio-recorded with the permission of participants.

Moderator bias was reduced by staying neutral (tone of voice, facial expression, body language...etc.) during an interview as much as possible. The moderator refrained from asking leading questions, which was aided by the use of an interviewer

guide. The information collected at each interview was summarized at the end of each interview. Only ongoing ideas/views of participants were used to prepare transcripts and care was taken not to manipulate original ideas of the participant by the moderator's interpretation of views.

Audiotapes were transcribed verbatim by the first author on the day of an interview. Both audio and verbal transcripts were compared to ensure comprehensibility. They were repeatedly read and re-read to prepare descriptive codes, which consisted of all emerging information. The results were then tabulated. The first interview was transcribed and interpreted before moving in to the next interview. The first author was coded the data. Descriptive codes were modified to identify broad themes and categories from the derived data. These categories were specific and mutually exclusive. Transcripts were again reviewed to ensure that all have been categorized. An exhaustive list of codes was developed that ensuring all important information had been included. These steps were followed up in all four FGDs and an amalgamated list of codes was developed under a broad theme. The analysis was made by manual content. Finally, the summary results were prepared.

Key Informant Interviews were the next qualitative data collection method used to explore the perception of the cervical cancer screening program in Sri Lanka among health care workers in MOH areas of Kalutara district. Ten KIIs were carried out during the December 2018. Key Informants were selected from categories involved in a cervical cancer screening program in Kalutara district such as Medical Officers of Maternal and Child Health (MOMCH), Medical Officers of Health (MOOH), Public Health Nursing Sisters (PHNSS), and Medical Laboratory Technologists (MLTT). The convenience sampling technique was used to ensure variability and to improve the quality of the information gathered. Each KII was conducted separately as it was more convenient for participants to give their views freely.

A conceptual framework for qualitative inquiries was developed based on the literature [12,13]. Using this conceptual framework, a moderator guide to facilitate the KIIs was developed for this study with the assistance of experts and reviewed by the same panel of experts as for FGDs (supplementary file 2).

Venues of the KIIs were identified according to the accessibility and comfort of Key Informants from MOH areas in the Kalutara district. Ten health care workers, who have engaged in the cervical cancer screening program in the Kalutara district, were selected as KIs, one month before conducting KIIs. Key Informants were informed of the venue and time for the discussion.

All interviews were conducted by the first author. Informed consent was obtained before an interview. Notes were taken by the first author for each participant in separate file. The duration of an interview was around 30 minutes. At the end of each interview, the first author summarized the information gained to the participant to ensure comprehensiveness.

Moderator bias was reduced by staying neutral (tone of voice, facial expression, body language, etc.) during an interview as much as possible. Triangulation methodology was used to improve the quality of the information. Formally written notes by the first author at the end of each interview were subjected to read and re-read several times and descriptive codes were prepared according to emerging ideas. These categories were spe-

cific and mutually exclusive. The analysis was made by manual content. Finally, an amalgamated list of codes was developed with FGDs. In the last summary, results were prepared.

Results

Among the total of 42 healthcare workers, thirty-two have participated in four FGD sessions and 10 have participated in ten KIIs. Among these, 41(97.6%) were Sinhalese, 39(92.9%) were Buddhist and 14 (33.3%) had working experience >20 years in the field (Table 1).

Table 1: Distribution of participants of FGDs and KIIs according to age, religion, race, and service in the field in completed years

Characteristics of participant	Number of staff (n=42)	Percentage %
Age in completed years		
>40	31	73.8
≤40	11	26.2
Total	42	100
Religion		
Buddhist	39	92.9
Catholic	3	7.2
Total	42	100
Race		
Sinhalese	41	97.6
Tamil	1	2.4
Total	42	100
Service in the field in completed years		
> 20		
≤5-20	14	33.3
	28	66.7
Total	42	100

Following the four FGD sessions and 10 KIIs altogether eleven major themes were identified (Table 2). The results of the study component are presented under the following themes according to perceptions of the cervical cancer screening program in Sri Lanka by healthcare workers in a district.

Table 2: Main themes & codes emerged from qualitative data collection techniques regarding the perception of cervical cancer screening program among health care workers in Kalutara district

Main themes	Main codes emerged (number of instances)
Cervical cancer screening	Early detection (20), Morbidity (20), Healthy mother (18), Progression of pre-cancers (14), Deaths from cancers (12)
Conventional pap smear screening test	Sensitivity (15), Cytology (15), Technology (12), Unsatisfactory smears (8), Reporting delay (8), Transportation (3), Un-tracing reports (2)
Poor coverage	Public health staff (21), Estimated population (16), 1% population (15), Social level (15), Migration (14), Job (14), Family issues (9), Education level (7)

Improve coverage	Community awareness (24), Supervision (18), Mobile clinics (18), Saturday clinics (12), Performance appraisal (11), Community mobilization (10), Reviews (7),
Supply management	Supply (28), Stock return (20), Annual schedule (5)
Report writing	Clear (8), Accurate (50), Cytology monthly return (3)
Positive follow-up	Public health staff (18), Attitudes of staff (11), Register (5)
HPV/DNA screening test	Sensitivity (18), Long term convenience (15), Pap smear test (15), Health staff workload (12), colposcopy (5), Liquid based cytology (3)
Vaginal HPV/DNA specimen collection method	Coverage (28), Provider collected (24), Clinic non-attendees (22), Convenient (22), Home (8), Privacy (6), Self-collected (5)
Needs identified	Special staff trainings(26), Supervision (23), Colposcopy facilities (4), Insurance (4), TV advertisement (3)
Barriers to cervical cancer screening	Not feeling ill (12), Fear of findings (10), Fear of pain (8), Cultural believes (4)

Cervical cancer situation in Sri Lanka: One Informant expressed her perception as follows. “I too work in the field >10 years now...In my area...One mother was diagnosed at a late stage of cervical cancer...she was never screened for cervical cancer [pap test]...She died at a very young age.....I exactly can’t remember her age... “I am sure, below 50 years...”.

Another young Informant claimed her perception as follows. “It’s good to have cytology-based screening method in Sri Lanka....cervical cancer...second commonest among our females...I got to know many turning points in cervical cancer screening program.....in Sri Lanka... ..Organized screening, target age cohort, two age cohort screening.....Screening at 45 years of age as a target cohort was initiated recently...to improve the pre-cancer detection rate among Sri Lankan women before converting into cervical cancer.....earlier 35 age cohort was the only target cohort”

Conventional pap smear screening test in Sri Lanka: One Medical Laboratory Technologist, who was engaged in cyto-screening expressed her perception as follows. ‘The biggest disadvantage of conventional cytology is missing cervical abnormalities.....[suboptimal sensitivity]. Only 20% of cells are smeared on the glass slide...taken by a spatula...all other cells are wasted...Although it’s an advanced method of screening...in comparison to subjective visual diagnosis...conventional cytology alone can miss cervical lesions.” “I received monthly 500-600 pap smears to screen...I do it without any delay...[no back logs]. There can’t be any reporting delay...I usually send the report within one month.....”.

Transportation delay should not be categorized under “reporting delay”....In some MOH offices smears are kept at the MOH office...until more are collected.....They are sending delayed smears to the laboratory....and erroneously categorized as a...reporting delay....I asked them to send slides every week.....”

Another cyto-screener expressed his perception as follows. “Health staff who are obtaining pap smears, need to adhere

to correct technique...I am in real trouble with unsatisfactory smears... I informed several times to relevant MOH.”

Poor coverage of the National Cervical Cancer Screening Program in Sri Lanka.....” : A Midwife from an urban sector stated her perception as follows. “I find very difficult to cater with...educated women....They are not willing to...even...listen to us....especially women with high social level are reluctant to attend...community clinics.”

Another Public Health Nursing Sister who works in the rural sector explained her perception as follows. “In my MOH area most of the women are engaging with a job...It is find hard to catch them and get to a clinic....many of others... catering with family issues...Our coverage isaround 50% in 2017...”

Improve coverage of the National Cervical Cancer Screening Program in Sri Lanka: One Informant claimed her perception as follows. “I think the most important is to increase community awareness.....Midwives are playing a major role in that... When, I visited the field...., I realized still the community awareness is poor...Informative leaflets, posters...hand bills can be used in that.”

Another Informant from the medical profession expressed her perception as follows. “District level quarterly reviews are very important....to identify trends of each MOH area...easy to take action for identified problems..... [at earliest]. At the regional level...we use to conduct an annual regional appraisal for WWC performance....~..... performance in supervision...for supervisory officers.....I think it gives a big magnitude for motivating people....”

Another Informant stated her perception as follows. “Mobile clinics at workplaces are...very important to cover... working mothers...Conducting mobile clinics in schools.....In school health days are some of best practices.....,We used to do”. “At each monthly conference.....PHMM were asked to present their plan... progress in coverage...., In the last quarter of the year... ..central clinic is amalgamating with WWC.... conducting on Saturdays at MOOH office.....It was a measure to catch-up uncovered women for the year...”“If we get mobile pap kits...to conduct mobile clinics...It is very benefitted... Early we were provided some amounts of kits...I exactly can’t remember, maybe in 2 years back.....”

Supply management of the National Cervical Cancer Screening Program in Sri Lanka: One Informant expressed her perception as follows. “In-charge officer in Regional Medical Supply Division, Kalutara is maintaining stocks adequately ... quarterly stock return is sending to the Family Health Bureau... before to the 5th of the next month in the following quarter.... getting next quarter stocks according to the previous stock balance return....I think it’s very important in uninterrupted supply management.....”

Report writing: One cyto-screener indicated his perception as follows. “some referral forms are not clear...They don’t write accurate information....I informed relevant MOH officers... [many times]. Some are still as same...It’s very important to write accurate information to get an idea about the client.”

Positive follow-up of the pap results in Sri Lanka: “Area Midwife needs to carry out close follow-up in such clients... follow-up their referrals...re-referrals...compliance with the management...repeated observational home visits...Then only it will happen as expected...”

A Public Health Nursing Sister stated her perception as follows. “earlier we maintained a “CR book’ ...to follow up pap positives...at the MOH office... Recently we were provided a special register.....It’s called positive follow-up register for clients with an abnormal test reports...”

HPV/DNA screening test in Sri Lanka: One Informant indicated her perception as follows. “In my MOH area, several women were informedrepeated clinic visit for a pap test... They were positive for HPV/DNA...This new test is based on PCR technique...Its detection rate is high....[sensitivity]. I exactly can’t remember, which types were positive.....”

One cyto-screener, described his perception as follows. “If this test is being implemented...The need of pap is reducing...Only HPV/DNA positives are subjected for pap test”. “HPV/DNA negatives are re-screened only after 10 years....the routine follow-up period is long...The workload of cytoscreeners, Histopathologists will be markedly reduced.....I believe this HPV/DNA test is worthwhile to incorporate....into the National Cervical Cancer screening program in Sri Lanka.....”

Vaginal HPV/DNA specimen collection method in Sri Lanka: Vaginal HPV/DNA specimen collection is doing ...without speculum examination...It can collect by a provider...or else...self collected...It is the best method to improve the coverage of the program....”

One Public Health Nursing Sister, claimed her perception as follows. “Vaginal HPV/DNA specimen collection method should apply.....only for clinic non-attendees....as services provided by the WWC is not only pap screening....So...Clients are missing the opportunity of getting...other services by well woman clinics.....This method is exclusively suitable for clinic non-attendees.....” “I think midwife collected vaginal specimen...more suitable to a country like in Sri Lanka.....The specimen should be properly obtained with the correct technique...Otherwise, it’s a waste.” Midwives can collect specimens...When they do home visits even...assuring more privacy for clients.....It is the best method to cover clinic non-attendees....”

Needs identified in the National Cervical cancer Screening program in Sri Lanka: One Informant expressed her perception as follows. “Updated knowledge, the new technique, correct technology, refresher course of training are must, to improve the quality of the program....Trainings should conduct under expertise....” “I identified gaps in the district....~.....in local supervision by MOH supervisory staff...”

One Public Health Nursing Sister described her perception as follows. “Recently we received a one abnormal cytology report...referred for colposcopy by MOH...She was asked to revisit twice for colposcopy procedure...[machine was under repair]. She is a school teacher. She did it in private sector..... Whole Kalutara district has only one colposcopy center.....”

Barriers to cervical cancer screening in Sri Lanka: One Sister indicated her perception as follows. “Women are reluctant

to attend clinics...It’s because they don’t feel ill.....They are so fond of their routine work.....rather than attending clinics... some are afraid of finding illness....They are fear ...”

A Midwife claimed her perception as follows. “Some women who had undergone pap screening...give wrong information... speculum insertion...[very painful. Seems to be a very unpleasant experience].Fear of pain.... in the procedure.” “Certain amount of cultural.....religious believes also have negative impact...in my PHM area.....”

Discussion

Cervical cancer is the 2nd leading cause of female cancer in Sri Lanka^[2]. Hence in 1998, Sri Lanka took an initiative to include screening for cervical cancer with conventional papanicolaou (pap) smear in the Well Woman Clinics (WWCs). However, even after 20 years of cervical cancer screening (with pap smears), there is no marked reduction in incidence, morbidity, and mortality of cervical cancer in Sri Lanka. Two major drawbacks of the present program are, the suboptimal sensitivity of the pap smear to detect Cervical Intraepithelial Neoplasia (CIN) and the low coverage of the cervical cancer screening program. Therefore, the cervical cancer prevention program needs to be reviewed with special attention.

The majority of healthcare workers have expressed their high satisfaction about the planning and organization of the present cervical cancer screening program as a preventive measure to reduce the incidence, morbidity, and associated mortality of cervical cancer and many were positive of the recent addition of 45 year age cohort too as a target age cohort for screening irrespective of the work burden to public health staff and cyto-screeners as the coverage of the program in 35 years old women was poor, this second age cohort of screening will cause to catch missed lesions at its precursor stage.

According to health care workers, a high social level and education level are not always positive with good health-seeking behavior and some of them were reluctant to listen to the public health field staff. Some other important factors for poor cervical cancer screening program coverage in the district as they highlighted were the migration of women for foreign employment, working women, especially in estates, and family issues.

The majority of them expressed that the program needs to be improved in both quality and coverage. To improve the coverage, community awareness, community mobilization, and supervision on ongoing activities by supervisory staff were mentioned as important measures. A cross-sectional study among community health care workers to assess the knowledge, attitude, and practice of cervical cancer and its screening amongst community health workers in India has also reported similar results^[9].

Conducting mobile clinics and Saturday clinics, district reviews and regional performance appraisals were some of the best practices in the district and evidenced by the improvement of the coverage from 52.8% in 2016 to 60.9% in 2018. They emphasized that short TV advertisement related to the importance of cervical cancer screening and insurance coverage for pap test/HPV/DNA test in the private sector would be attractive measures for future improvement of the cervical cancer screening program coverage.

Only a few health care workers highlighted the problem of pap cytology reporting delay and untraceable reports. Reporting delay may be either truly associated with the delay of cyto-screening procedure at the laboratory or it can be a transportation delay from MOH offices to the reference laboratory. So MOH needs to take a measure to transport pap smears weekly to the laboratory, irrespective of the number of slides at the office. Some health care workers mentioned the unsatisfactory smear rate which showed the necessity of technological updates among the health staff. A descriptive cross-sectional study carried out among PHMM attached to all MOH divisions in Galle district was reported similar results^[10], which gives the direction of improvement of the existing cervical cancer screening program.

The majority indicated that the supply management was smooth without any interruption from the central level and some healthcare workers complained about the accuracy of pap referrals, where MOH should pay special attention and train PHMM on in-service training days. All three cyto-screeners have mentioned many difficulties in sending cyto-screening monthly return before the 5th of the following month including non-availability of Consultant Histopathologists in some institutions.

No issues related to the follow-up of screen-positive women in the district. Public health staff actively campaigned on that. Positive follow-up of screen-positive women mainly depended on Attitudes of the public health staff as believed by some healthcare workers. The recently introduced positive follow-up register was a very useful tool for more organized follow-up.

The majority of them were concerned about the affordability of the HPV/DNA test in thin prep cell collection media. Further they highlighted the cost of the Liquid-Based cyto-screening. In spite of the affordability, an HPV/DNA screening test was highly acceptable among health care workers in the district to improve the detection rate of cervical lesions to reduce some categories of healthcare workers' work burden and the convenience for the target women due to lengthy screening interval.

Acceptability was high among health care workers for the vaginal HPV/DNA specimen collection method to improve the coverage of the program. They claimed that it should be limited to clinic non-attendees only as from WWCs many other services are provided to women. They also mentioned that the provider collected vaginal specimen screening method is suitable for Sri Lanka but the literacy rate of women may vary and if the client was not taking the specimen correctly ultimately test kit would be wasted. Therefore PHMM collected vaginal specimens at either clinic setting or while during their home visits were preferred by healthcare workers to improve the coverage of cervical cancer screening program.

Colposcopic facilities in the district need to be more strengthened to assure the smooth functioning of the cervical cancer screening program, in the district. Some of the important barriers of cervical cancer screening as mentioned by the healthcare workers in the district were women not feeling ill, fear of findings, unnecessary fear of speculum insertion associated pain and some cultural beliefs, which gives a similar pattern to the study carried out in 2018 in Canada^[14]. A cross-sectional survey among 219 female health care workers including PHMM (68.9%) selected by using the convenience sampling technique

from 6 districts in Sri Lanka was given similar results^[11].

To overcome the problems associated with the present cervical cancer screening program new HPV/DNA test could be attempted after careful assessment of its cost-effectiveness as the suitability of HPV/DNA screening was well assessed in the Sri Lankan setting. It is essential that narrowing of the existing gap between the perception and practice of cervical cancer screening should be initiated by introducing more educational programs for workers and encouraging them to practice in screening campaigns.

This study was restricted to one district out of 25 districts in Sri Lanka due to logistic constraints. The population characteristics and the public health infrastructure of the district favored generalizability of the research findings to the whole country of Sri Lanka.

Conclusions and Recommendations

Healthcare workers in Kalutara district were highly accepted the HPV/DNA new screening test for the quality improvement of the program and the vaginal HPV/DNA specimen screening method was mentioned to increase the coverage of the National Cervical Cancer Screening Program in Sri Lanka.

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Availability of data and materials: The datasets used to analyze in this study are available at the corresponding author on reasonable request.

Authors contribution: KCMP has participated in the design of the study, was the moderator of FGD sessions and IDIs, performed the broad thematic analysis, and drafted the version of the manuscript. HTCSA and NM participated in the design of the study. HTCSA has supervised the descriptive codes, and performed broad thematic analysis, and interpreted data. Both HTCSA and NM were helped to draft the manuscript. All three authors were read and approved the final manuscript.

Ethical approval and consent to participate: Ethical clearance was obtained from the Ethics Review Committee (ERC), National Institute of Health Science (NIHS), Kalutara Sri Lanka (Ref. number NIHS/ERC/18/06R). Informed written consent was obtained from each of the selected participants during the study. Confidentiality was highly maintained, while handing over individual HPV/DNA result reports. Administrative clearance to conduct the study was obtained from Provincial Director of Health Services/Western Province, Regional Director of Health Services/Kalutara district, Director/ District General Hospital Kalutara.

Consent for publication: Not applicable.

Competing interests: The authors were declared that they have no competing interests.

Abbreviations: WWC: Well Woman Clinic; ASCUS: Atypical

Squamous Cells of Undetermined Significance

CIN: Cervical Intraepithelial Neoplasia; MOH: Medical Officer of Health; PHM: Public Health Midwife; FGD: Focus Group Discussions; KII; Key Informant Interview; PCR: Polymerase Chain Reaction

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