RESEARCH ARTICLE

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Counselling to Screening: Honing an Institutional Cervical Cancer Screening Program

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Abstract

Objective: Cervical cancer screening is an important tool in WHO's global strategy for cervical cancer elimination. The objective of the study was to suggest and study the impact of capacity building interventions to increase cervical cancer screening rates in women aged 30-49 years attending the gynecological OPD. **Methods:** As part of a multicentric study, qualitative research was carried out at a tertiary care institute (from September 2021 to June 2022) to gather information regarding the existing cervical cancer screening practices, analyze factors preventing universal screening, and develop troubleshooting strategies. A fishbone analysis was done to identify barriers to cervical cancer screening. Stepwise sequential implementation of seven Plan-Do-Study-Act (PDSA) cycles which included; doctors training, policy formation, dedicated counsellor and reminders on social network groups, OPD card stamps, reading and educational material, screening in all OPD rooms and finally establishment of dedicated screening room. The effect of each on counselling and screening of eligible women was noted. **Results:** With the implementation of these PDSA cycles, the rates of eligible women being screened increased from 10.6% at baseline to 44.8% at the end of the study period. The percentage of counselled women increased to 70% and it was observed that counselled women were more likely to get screened. **Conclusion:** Educating women about the importance of cervical cancer screening and the creation of a dedicated screening room were the two most important quality improvement interventions.

Keywords: Cancer screening- Cervical neoplasm- Preinvasive carcinoma- Quality improvement

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Introduction

Cancer cervix is the second commonest cancer among women in India. As per the Globocan 2022 data, cervical cancer is the fourth most frequently diagnosed cancer and the fourth leading cause of cancer related death in women. There were an estimated 661,021 new cases and 348,189 deaths worldwide in the year 2022 due to cervical cancer [1]. In India, it is the second most frequently diagnosed cancer and second leading cause for cancer-related death in women with an estimated 79,103 new cases in 2022 and a 1 in 75 cumulative risk [2].

Cervical cancer is associated with significant morbidity and mortality, especially in advanced stages [3]. The two most effective methods of prevention are vaccination against the common oncogenic HPV strains and screening. Available methods of cervical cancer screening include: conventional Papanicolaou (Pap) test, liquid based cytology, human papillomavirus testing and visual inspection with acetic acid (VIA) [4]. Wide population coverage for screening is an important arm for cervical cancer elimination.

Despite the availability of numerous screening tests, the percentage of women who have undergone cervical cancer screening at least once remains low: 36% worldwide and 1.9% in India (lowest being 0.2% in Gujarat to highest at 9.8% in Tamil Nadu states) [5, 6]. Population based cervical cancer screening program was implemented under the Ministry of Health and Family Welfare (MOHFW), Government of India from 2016 and the program recommends using VIA as the screening tool by health care workers [7]. In 2021, the World Health Organization (WHO) also recommended VIA and HPV DNA test as primary tests for 'screen and treat' approach [8]. 'Screen and treat' approach offers a single visit solution for screening as well as treatment.

Various barriers to implementation of universal screening exist, especially in low and middle income countries, which includes poor awareness, lack of resources, limited access to health care, inadequate policy

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models and lack of trained staff [9]. Implementation of quality improvement initiatives focused on training of health care professionals, counselling and education of target population and reducing economic barriers can lead to increased screening rates [10].

The aim of this study was to analyze factors preventing cervical cancer screening in women aged 30-49 years attending the gynecological OPD and, to plan assessment based interventional strategies for training and capacity building in an effort to increase screening rates.

Materials and Methods

This quality improvement endeavor was conducted in the Department of Obstetrics and Gynecology at the All India Institute of Medical Sciences (AIIMS) Rishikesh, India. The study was a part of a multicentric study conducted by the Department of Obstetrics & Gynecology, AIIMS, New Delhi, in collaboration with WHO South-East Asia Region (SEARO).

The study was conducted over a period of 10 months from September 2021 to June 2022. Ethical approval was taken from the Institutional Ethics Committee [Number: AIIMS/IEC/21/445]. Point of Care Quality Improvement model was used and steps of quality improvement as given by the WHO were applied systematically for the purpose of this study [11].

Study started with identification of the problem, team formation and formation of an aim statement. The problem identified was that women between 30-49 years, attending the gynecology outpatient department (OPD) were not being routinely screened for cervical cancer. A team consisting of a professor, faculty member, a junior resident, a field worker and a research associate was formed with the professor acting as the team leader.

The objective of the study was to suggest and study the impact of capacity building interventions to increase cervical cancer screening rates. As a quality improvement initiative and to identify the barriers to cervical cancer screening, a situational analysis of the existing screening scenario was done and a cause and effect (Fishbone) sketch was made as shown in Figure 1.

Baseline analysis of existing trends of cervical cancer screening at the institute was carried out in the month of December 2021. Total 2195 women (non-pregnant) attended the OPD in the month of December; 1128 (51.3%) women were in the age group of 30-49 years and 120 (10.6%) women were screened. All women were screened using Pap test. Patients had to purchase a kit (consisting of Ayre's spatula, an endocervical brush and a glass slide) from the pharmacy for the purpose of the test. Cost of the kit was 0.60 USD and institutional charges for Pap smear reporting was 0.30 USD per test. Only women with abnormal uterine bleeding, vaginal discharge, clinically suspicious looking cervix or planned for hysterectomy underwent Pap smear. Various ideas to increase cervical cancer screening were decided upon, implemented and then tested in the form of Plan-Do-Study-Act cycles (PDSA). Seven consecutive PDSA cycles were implemented and each was assessed over a period of 4 weeks.

PDSA 1

Orientation class was conducted for 58 resident doctors with special emphasis on VIA

PDSA 2

A departmental policy of screening of all women aged 30-49 years attending the gynae OPD was formed

PDSA 3

Frequent posts and reminders regarding cervical cancer screening were made on WhatsApp groups and a dedicated personnel for counselling in the OPD was appointed

PDSA 4

Putting a stamp on OPD paper of eligible patients at

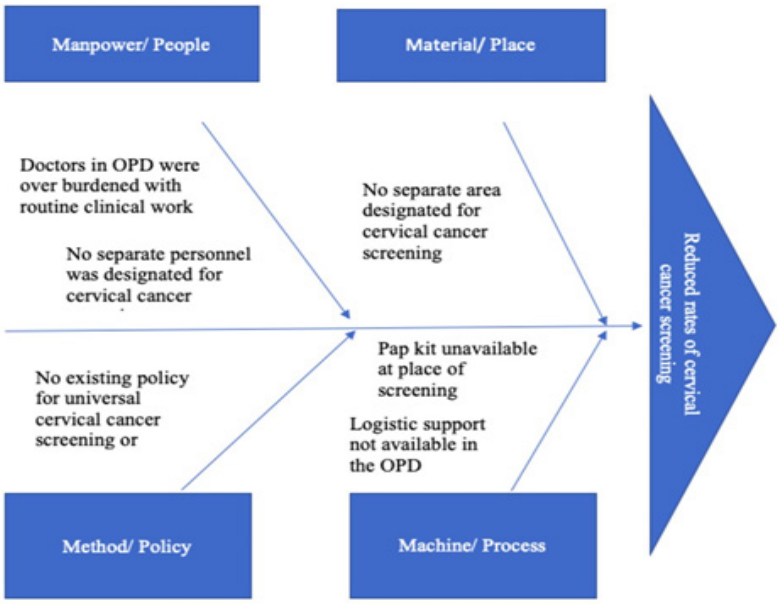

Figure 1. Fishbone Analysis for Identification of Barriers to Cervical Cancer Screening

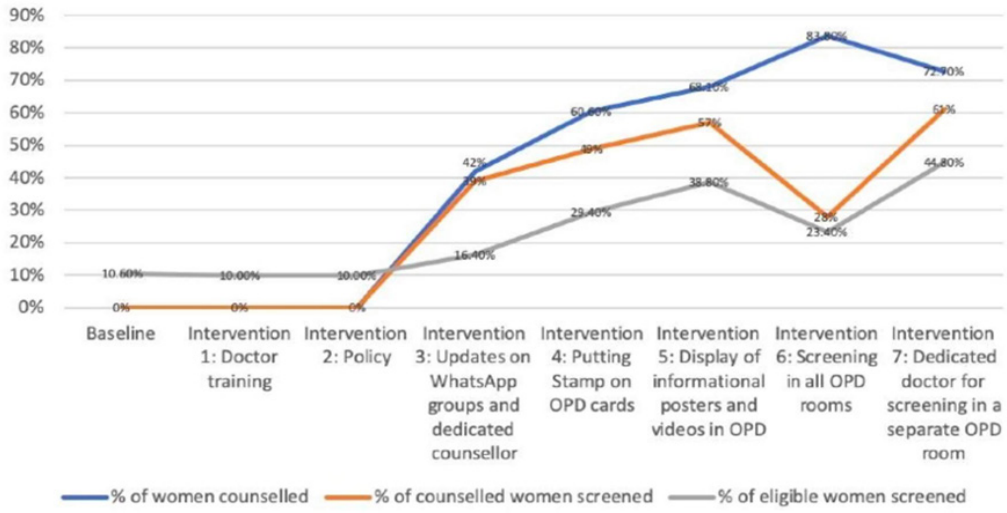

Figure 2. Graphical Representation of the Effect of each PDSA Cycle on the Three Quality Indicators: percentage of women counselled, percentage of counselled women screened and the percentage of eligible women screened

the time of registration to ensure easy identification of eligible population

PDSA 5

Posters and videos with information on cervical cancer screening (both in Hindi and English) were displayed in OPD waiting area for creating awareness amongst the general public

PDSA 6

Screening in all OPD rooms was implemented. Consumables for VIA were supplied in each room and residents were instructed to screen eligible patients along with the routine pelvic examination

PDSA 7

A separate room was designated only for cervical cancer screening and a resident doctor was posted

Various quality indicators were decided upon to assess the efficacy of the PDSA cycles.

Indicator 1

Percentage of eligible women (between 30-49 years) who were counselled for cervical cancer screening

Indicator 2

Percentage of counselled women who underwent screening for cervical cancer

Indicator 3

Percentage of eligible women who underwent screening for cervical cancer

Data was collected on a daily basis by one of the team members (Research Associate). The team members would meet once in two weeks to discuss and review the impact of implementing each PDSA cycle. Outcome measures were plotted on a run chart and PDSA interventions were decided upon accordingly.

Results

Baseline cervical cancer screening rate in the eligible age group (30-49 years) was 10.6%. Women were not being specifically counselled for screening. The impact of each PDSA cycle implemented, is described below and depicted in Figure 2.

PDSA 1

Doctor training

This training was conducted over a period of two days through power point presentations on cervical cancer screening strategies and demonstration of techniques. However, the screening rates remained the same as baseline.

PDSA 2

Policy formation

The formation of a departmental policy also did not lead to a rise in screening rates.

PDSA 3

Updates on WhatsApp Groups and counselling by a dedicated personnel

There was a significant improvement in our outcome indicators, 42% of eligible women were counselled for cervical cancer screening and 39% of these counselled women underwent screening. However only 16.4% of all eligible women were screened.

PDSA 4

Stamp on OPD cards of eligible patients

Around 60.6% of eligible women were counselled for cervical cancer screening, 49% of these counselled women underwent screening. The percentage of all eligible women who were screened increased to 29.4%.

PDSA 5

Display of IEC material in OPD

Screening rates further increased; 68.1% of eligible women were counselled for cervical cancer screening,

57% of these counselled women underwent screening. The percentage of all eligible women who were screened also saw a rise to 38.8%.

PDSA 6

Screening in all OPD rooms

A significant jump (83.8%) was seen in the percentage of eligible women counselled for cervical cancer screening. But, the screening rates dropped: only 28% of counselled women and 23.4% of all eligible women were screened. This idea was thus abandoned.

PDSA 7

Dedicated Screening room

Around 72.7% of eligible women were counselled for cervical cancer screening. The percentage of counselled women who underwent screening after this intervention increased to 61% and also the percentage of all eligible women who were screened increased to 44.8%.

Discussion

Amongst the seven PDSA cycles, cycle 3 led to the first positive impact on screening rates. Frequent WhatsApp reminders to resident doctors and counselling of eligible women by a dedicated personnel were effective strategies. Also, putting a specially designed stamp on the OPD papers of the eligible population at the registration counter was another helpful intervention that helped in easy identification of the target population and served as a reminder to counsel and screen.

Display of educational material in the OPD space saw the next big increase in our quality indicators. We observed that percentage of counselled women who received screening (Indicator 2) was always higher as compared to the percentage of all eligible women who were screened (Indicator 3). It was evident that women who were counselled about importance of cervical cancer screening were more likely to undergo the procedure than the rest.

PDSA 6 included promoting VIA in each room in the OPD where resident doctors were encouraged to screen eligible patients along with routine pelvic examination. This intervention reported a decline in screening and we realized that the resident doctors did not screen along with routine clinical examination probably due to a busy work load in the outpatient area, the disinclination for additional work or missed it because it was not part of the routine they were accustomed to. To circumvent this, a dedicated room with all VIA consumables was designated in OPD and a dedicated resident doctor was posted there solely for screening which led to significant jump in screening numbers.

Our results were consistent with that observed in a recent systematic review by Saei Ghare Naz M et al. [12] who concluded that various health education methods (PowerPoint presentations, calls, educational brochures, tailored counselling sessions, small group discussions) were effective in altering women's attitude and behavior towards cervical cancer screening. Educational interventions can reduce the barriers and can improve cervical cancer screening rates in women across the world. The choice of educational methods can be made by the health care workers to suit their local needs [12].

Joung RH et al also evaluated quality improvement interventions and their impact on various nationwide cancer screening programs targeting breast, colon, lung and cervical cancers. Interventions focused on education of both health care providers and patients, frequent reminders on electronic media and educational display in hospitals. They reported that 79% of screening programs reached their target monthly screening target volumes, the percentage was the least for cervical cancer (59%). Cumulative total number of screening tests across all projects increased from 2,849,703 at baseline to 3,572,130 at the end of 6 month intervention period reflecting good impact of the quality improvement initiatives [10]. Coleridge SL et al. [13] studied the effect of quality improvement interventions on the increase in cervical cancer screening of pregnant and postnatal women. Information dissemination to staff, education of pregnant women via a dedicated smart app and increasing the number of screening hours in outpatient clinics led to a fall in the percentage of women out of date with their screening by 6 months postpartum from 34.8% to 27.1% [13]. Hills RL et al. [14] conducted a quality improvement study aimed at improving cervical cancer screening rates in an urban safety net clinic in Virginia, USA. At the end of 12 months of implementation of the project, authors observed that the number of patients screened in accordance with the guidelines had almost doubled and the number of under screened women reduced almost by half [14]. Findings in the above quality improvement studies mirrored our observations.

We observed that creating awareness amongst women on the importance of cervical cancer screening, creating a dedicated screening room and allocating a resident doctor specifically for this purpose, with no other responsibilities on that particular day, were two of the most important interventions improving screening rates. Also, implementation of VIA that did not require women to purchase consumables and stand in billing queues led to increased screening rates. These encouraging results strengthen VIA as a primary screening tool in health care setups, especially low resource settings. We have since trained 150 nursing and community nursing professionals across Uttarakhand, India and an additional 30 nursing officers of AIIMS Rishikesh. This was a comprehensive hands on VIA training in a 10 day in-house program funded by National Health Mission, Uttarakhand. With this initiative we were able to establish a dedicated 'Nurse led VIA screening' initiative run exclusively by the nursing staff in a dedicated area.

To conclude, creating awareness with dedicated counselling and educational posters as well as establishing a dedicated area with a committed resident doctor for VIA screening were two most important QI interventions which led to an increase in cervical cancer screening in women aged 30-49 years. Women who were counselled for screening were more likely to undergo the procedure. Formal training of allied health care personnel may pave the way for more effective screening. Setting-up of a

dedicated space for this purpose is possible within existing infrastructure.

Author Contribution Statement

Latika Chawla and Shalini Rajaram: Conceptualization, methodology, formal analysis, writing - original draft, review and editing, project administration. Ipshita Sahoo: Interpretation, writing – original draft, review and editing. Shilpa Panta and Ayush Heda: Methodology, formal analysis, project administration. Jaya Chaturvedi: Writing-review and editing. Ravi Kajal, Anupama Bahadur, Amrita Gaurav, Rajlaxmi Mundhra, Kavita Khoiwal: Data acquisition, project administration

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General

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Approval

Ethical approval was taken from the Institutional Ethics Committee, All India Institute of Medical Sciences (AIIMS), Rishikesh [Approval Number: AIIMS/IEC/21/445].

Data Availability Statement

Data generated by the authors is available on request.

Conflict of Interest

Authors report no conflict of Interest

References

1. Bray F, Laversanne M, Sung H, Ferlay J, Siegel RL, Soerjomataram I, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2024;74(3):229–63. https://doi.org/10.3322/caac.21834
2. Sathishkumar K, Chaturvedi M, Das P, Stephen S, Mathur P. Cancer incidence estimates for 2022 & projection for 2025: Result from National Cancer Registry Programme, India. Indian J Med Res. 2022;156(4 & 5):598–607. https://doi.org/10.4103/ijmr.ijmr_1821_22
3. Cancer of the Cervix Uteri - Cancer Stat Facts. SEER [Internet] [cited 2024 May 21].Available from: https://seer.cancer.gov/statfacts/html/cervix.html
4. Rajaram S, Gupta B. Screening for cervical cancer: Choices & dilemmas. Indian J Med Res. 2021;154(2):210–20. https://doi.org/10.4103/ijmr.IJMR_857_20
5. Bruni L, Serrano B, Roura E, Alemany L, Cowan M, Herrero R, et al. Cervical cancer screening programmes and age-specific coverage estimates for 202 countries and territories worldwide: a review and synthetic analysis. Lancet Glob Health. 2022;10(8):e1115–27. https://doi.org/10.1016/S2214-109X(22)00241-8
6. Gopika MG, Prabhu PR, Thulaseedharan JV. Status of cancer screening in India: An alarm signal from the National Family Health Survey (NFHS-5). J Family Med Prim Care. 2022;11(11):7303-07. https://doi.org/10.4103/jfmpc.jfmpc_1140_22
7. MoHFW NH. Operational guidelines prevention, screening and control of common non-communicable diseases: hypertension, diabetes, common cancers (oral, breast, cervix). National Health Mission. 2016:2021-06. Available from: https://main.mohfw.gov.in/sites/default/files/
8. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention, second edition [Internet]. Geneva: World Health Organization; 2021. [cited 2024 May 21]. Available from: https://iris.who.int/bitstream/handle/10665/342365/9789240030824-eng.pdf?sequence=1
9. Petersen Z, Jaca A, Ginindza TG, Maseko G, Takatshana S, Ndlovu P, et al. Barriers to uptake of cervical cancer screening services in low-and-middle-income countries: a systematic review. BMC Womens Health. 2022 Dec;22(1):486. https://doi.org/10.1186/s12905-022-02043-y
10. Joung RHS, Mullett TW, Kurtzman SH, Shafir S, Harris JB, Yao KA, et al. Evaluation of a National Quality Improvement Collaborative for Improving Cancer Screening. JAMA Netw Open. 2022 Nov;5(11):e2242354. https://doi.org/10.1001/jamanetworkopen.2022.42354
11. Learner Manual-Point of Care Quality Improvement, version 03 [Internet]. India: World Health Organization, Regional Office for South-East Asia; 2020. [cited 2024 May 18]. Available from: https://www.pocqi.org/POCQI_Learner_Manual_Ver03_2020.pdf
12. Saei Ghare Naz M, Kariman N, Ebadi A, Ozgoli G, Ghasemi V, Rashidi Fakari F. Educational Interventions for Cervical Cancer Screening Behavior of Women: A Systematic Review. Asian Pac J Cancer Prev. 2018 Apr;19(4):875–84. https://doi.org/10.22034/APJCP.2018.19.4.875
13. Coleridge SL, Wiggans A, Nelissen E, Bethune R, Blackwell R, Bryant A, et al. Improving the uptake of cervical screening in pregnant and recently postnatal women: a quality improvement project. BMJ Open Qual. 2022 May;11(2):e001709. https://doi.org/10.1136/bmjoq-2021-001709
14. Hills RL, Kulbok PA, Clark M. Evaluating a Quality Improvement Program for Cervical Cancer Screening at an Urban Safety Net Clinic. Health Promot Pract. 2015 Sep;16(5):631–41. https://doi.org/10.1177/1524839915587269