

Enablers & challenges of tribal women & health system for implementation of screening of non-communicable diseases & common cancers: A mixed-methods study in Palghar district of Maharashtra, India

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Background & objectives: Non-communicable diseases (NCDs) and cancers of breast, oral cavity and cervix contribute to around 5.87 million (60%) deaths in India. Despite this, there is limited evidence on preparedness of the tribal health system in mitigating these conditions. This mixed-methods study aimed at identifying enablers and challenges using a multistakeholder approach for the screening of NCDs and common cancers in a tribal block of Maharashtra, India.

Methods: This study was conducted in a tribal community of Dahanu taluka in Palghar district of Maharashtra. A total of nine focus group discussions (FGDs) among tribal women and accredited social health activists (ASHAs), 13 key informant interviews (KIIs) among auxiliary nurse midwives (ANMs) and community health officers (CHO) and facility surveys of five public health facilities were conducted. The FGDs and KIIs were conducted using guides, recorded digitally, transcribed, analyzed and triangulated to identify emerging themes.

Results: The tribal women had limited knowledge about NCDs and common cancers. Paucity of health facilities, out-of-pocket expenditure, misconceptions, belief on traditional healers and inability to prioritize health were identified as major challenges. The ASHAs were recognized as a key connecting link between health system and community while provision of culturally appropriate IEC materials and adequate training were recognized as critical enablers by healthcare providers in implementing screening for NCDs and common cancers.

Interpretation & conclusions: The study recommends incorporating socioculturally relevant strategies in the tribal population and strengthening health facilities in terms of infrastructure and training with involvement

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of ASHAs for successful implementation of the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) through health and wellness centres.

Key words Common cancers - health system - mixed-methods research - non-communicable diseases - screening - tribal

Globally, non-communicable diseases (NCDs) are being recognized as major contributors to increased mortality and attribute to more than 15 million deaths as reported in the 2021 WHO factsheet¹. With over 5.87 million (60%) deaths in 2014 due to NCDs such as cardiovascular diseases, cancers and diabetes², India is emerging as the epicentre of the NCD pandemic. Cancers of breast, oral cavity and cervix account for 33 per cent of cancers in India³. India leads the world in rates of cervical cancer while breast cancer is rapidly becoming number one and cancer of the oral cavity is ranked fourth due to the usage of smokeless tobacco¹. About 71 per cent of cancer deaths occur in those aged 30-69 yr⁴ which emphasizes the substantial social and economic gains associated with a successful cancer screening and prevention programme.

In India, the National Programme for the Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was established in the year 2010 for implementing screening of common cancers and NCDs in a phased manner in government facilities⁵. To achieve this objective, State NCD cells were established in 36 States, Union Territories, and district NCD cells were established in 390 districts⁵.

However, there is an unmet need for the screening of common cancers and NCDs, especially in tribal areas. India is home to 10.45 crore (8.63%) Adivasis or scheduled tribes (STs) with 705 tribes and 75 groups identified as particularly vulnerable tribal groups (PVTGs)^{6,7}. The tribal population in Maharashtra is about 10 million, representing 9.4 per cent of the State population⁶. Palghar is a newly formed district in Maharashtra with 37.4 per cent population consisting predominantly of STs8. There exists a rift between tribal and non-tribal populations with regard to healthcare. The tribals suffer from a quadruple burden of diseases such as malnutrition, mental health, communicable diseases, non-communicable diseases and addictions9. This is due to widespread poverty, illiteracy, sanitary and living conditions, traditional practices and ineffective coverage of health services¹⁰.

The incidence of NCDs are overtaking communicable diseases in tribal populations as

demonstrated by several studies^{6,11-13}. There is limited evidence regarding the views of tribal women and healthcare providers on screening for NCDs and common cancers. Furthermore, currently, limited screening is carried out for NCDs which does not include common cancers in the tribal blocks. This article presents the findings of the formative research component of a larger ongoing implementation study in collaboration with the State health system (unpublished). This study aimed to provide significant insights to explore the enablers and challenges for effective implementation of screening for common cancers and NCDs in health and wellness centres (HWCs) through the NPCDCS programme.

Material & Methods

The study was approved by the Institutional Ethics Committee of ICMR-National Institute for Research in Reproductive and Child Health and was conducted in a tribal community served by Ashagad Public Health Centre (PHC) in Dahanu taluka of Palghar district in Maharashtra, India, from December 2019 to February 2020. Palghar district with a population of 2,990,116 has a predominantly tribal population comprising Kathodis, Katkaris, Kokanas, Koli and Vanjari tribes. The health infrastructure of Dahanu block comprises two subdistrict hospitals, one rural hospital, nine PHCs, 65 HWCs, six medical rescue camps, three primary health units and two zila parishad dispensaries¹⁴. Ashagad PHC with a tribal population of 38014 and four HWCs in Saravali, Waki, Kosbad and Kainad were purposively selected to ensure the wider coverage of geographical, socio-economic and cultural status.

Study design: A mixed-methods study involving a concurrent triangulation design was used. The qualitative aspect of the study comprised focus group discussions (FGDs) and key informant interviews (KIIs), and quantitative aspect of the study comprised facility surveys of Ashagad PHC along with HWCs. To understand the perspectives of the tribal community, a total of nine FGDs, five among eligible tribal women aged 30-59 yr and four among accredited social health activists (ASHAs), 13 KIIs, nine among auxiliary nurse midwives (ANMs) and four among community health officers (CHOs) and a health facility assessment were undertaken to assess the infrastructure and essential resources such as drugs, screening tests, equipment and information, education and communication (IEC) material available in PHC and HWCs for the screening of NCDs and common cancers as per Indian public health standards (IPHS)^{15,16}.

Study tools: The tribal women were contacted randomly by ASHAs through home visits, while the ASHAs, CHOs and ANMs were chosen purposively. The study tools included an English thematic FGD guide translated into local language of Marathi, semi-structured questionnaire for KIIs and a facility survey checklist. The FGD guide domains included: (i) general information about cancer screening and NCDs, (ii) basic understanding about cancer and NCDs, (iii) awareness about screening, (iv) management procedures for screen-positive patients and (v) general views. All the participants were informed about the purpose of the study, and a written informed consent from the participants was obtained by the study team. A witness also signed the form if the participant was illiterate. Confidentiality and privacy were ensured at all the stages of data collection, management and analysis.

Focus group discussions (FGDs): Around 8-9 women participated in each FGD. Total five FGDs enabled a theoretical saturation, when no new ideas were emerging. The study was conducted by a team comprising a public health scientist trained in qualitative research, a gynaecologist and research assistants.

The research assistants facilitated the FGDs and each FGD lasted on an average for one hour, excluding 10-15 min spent on administering consent and building rapport. All audio-recorded FGDs were fully transcribed and translated verbatim from Marathi to English and proofread several times by the research assistants. Two of the research assistants developed a codebook. Based on the responses obtained, themes and subcategories were defined by the research team, codes were compared between FGDs among eligible women in the PHCs and HWCs to observe similarities and differences, which was correlated with KIIs and facility surveys, and the data were triangulated (Figure). A thematic qualitative analysis was conducted manually to identify the salient themes in the data. The 32-item COnsolidated criteria for REporting Qualitative research (COREQ-32) checklist guided the reporting of this study¹⁷.

The responses of the FGD participants were coded depending on the study site and denoted with EW (indicating eligible woman) and ASHA and the number allotted to them. The FGD held at Ashagad was denoted as FGD-1, Saravali as FGD-2, Waki as FGD-3, Kosbad as FGD-4 and Kainad as FGD-5.

Results

A total of 45 tribal women and 25 ASHAs participated in the FGDs. Majority of the FGD participants were from the age group of 30-39 yr (tribal women: 37.7% and ASHAs: 72%) and most of them were married. All the ASHAs were literate with at least secondary education while majority of tribal women were illiterate (64.4%). Around 42 per cent of the tribal women were labourers by occupation. The sociodemographic characteristics of the participants are described in Table I. The thematic qualitative analysis revealed the following themes: (*i*) participant's knowledge and awareness about NCDs and common cancers, (*ii*) attitudes and practices related to NCDs and common cancers, and (*iii*) health-seeking behaviour and treatment.

FGDs of eligible women and accredited social health activists (ASHAs):

<u>Theme 1: Knowledge and awareness about NCDs and common cancers</u>: Approximately half of the tribal women perceived fever, headache, body ache, general weakness, itching, dysuria and tuberculosis as common ailments of women. Although they had heard about diabetes and hypertension, they did not have detail information about these conditions.

'Sugar is produced in blood, so it causes diabetes'. (FGD-1-EW-5)

'Diabetes can be checked by investigation of blood'. (FGD-1-EW-6)

'Some people have high blood pressure; some people have very low blood pressure'.

(FGD-4-EW-5)

The tribal women were aware that the risk factor of oral cancer was consumption of tobacco products.

'Cancer of mouth is due to drinking alcohol or chewing masher and tapkir (a smokeless tobacco product in powder form)'.

(FGD-1-EW-2, EW-4)

ASHAs demonstrated significant knowledge when questioned about NCDs which could be because of training on NCDs which they had received.

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Figure. Triangulation of data for a mixed-methods study. ASHA, accredited social health activist; IEC, information, education and communication; ANM, auxiliary, nursing and midwife; FGDS, focus group discussions; MO, Medical Officer; NCDs, non-communicable diseases.

'Non-communicable diseases do not spread from one person to other. Communicable disease spreads from one person to another'.

(FGD-4-ASHA-2)

Few participants had heard of oral and breast cancer but were unaware about cervical cancer. Few of them replied that they only knew about *Gath* (lump). Some informed that they had seen cancer prevention advertisements on television and that cancer was incurable. One participant stated that cancer can be cured if treatment is adhered. One ASHA shared the case of a patient with cervical cancer who was referred to higher facilities.

'I have a 50 yr aged patient with cervical cancer. She is on treatment in Surat since 5 to 6 years. She had abdominal pain and white discharge. She was admitted in Cottage Hospital (Sub District Hospital, Dahanu), after that she was referred to Valsad and after that she was again referred to Surat for treatment. Now her treatment is ongoing'.

(FGD-4-ASHA-1)

Few eligible women and ASHAs were aware about the causative factors and symptoms of NCDs and common cancers.

'Difficulty in opening mouth, unable to eat food because it tastes spicy'.

(FGD-3-ASHA-7)

'My mother had breast cancer. Initially, the lump was small, but later it increased gradually'.

(FGD-1-EW-6)

'Due to tobacco chewing, the skin of the mouth peels then there is swelling and then skin bursts'.

(FGD-5-ASHA-4)

Theme 2: Attitudes and practices:

(*i*) <u>Social practices</u>: It was seen that the community followed the practice of child marriage and having multiple sexual partners, especially men. These practices were accepted by the women and were considered important aspects of the traditional system.

Table I. Sociodemogra and accredited social here	phic characteristics o ealth activists	f tribal women
Sociodemographic characteristics	Tribal women (n=45), n (%)	ASHAs (n=25), n (%)
Age group (yr)		
20-29	4 (8.9)	4 (16)
30-39	17 (37.77)	18 (72)
40-49	10 (22.22)	3 (12)
50-59	14 (31.11)	0 (0)
Marital status		
Married	44 (97.7)	25 (100)
Unmarried	1 (2.22)	-
Parity		
1-2	26 (57.7)	14 (56)
≤3	18 (40)	11 (44)
Education		
Illiterate	29 (64.4)	-
Primary	7 (15.5)	-
Secondary	9 (20.0)	13 (52)
High school	-	11 (44)
Intermediate	-	-
Diploma	-	-
Graduate	-	1 (4)
Occupation		
Housewife	24 (53.3)	-
Labourer	19 (42.2)	-
Domestic help	1 (2.22)	-
Service	1 (2.22)	25 (100)
Professional	-	-
ASHAs, accredited soc	ial health activists	

'In our area children as young as 12 years of age also run away and get married'.

(FGD-5-EW-6)

'They are married to one woman but have relations with other women'.

(FGD-2-ASHA-5)

(*ii*) <u>Self-behavioural factors for screening</u>: Perceived stigma, fear of discrimination and hesitation were common behaviours inhibiting the women from discussing breast or cervical cancer-related issues. A number of participants expressed an unwillingness to undergo screening for NCDs and common cancers because of the fear of discrimination and being labelled as a diseased person. The discussion with the women revealed that they did not prioritize health and were unaware of long term complications, due to combined burden of household duties, manual labour, poor access to health facilities and out-of-pocket expenses. Clearly the social and economic circumstances were responsible for negligence to health, leading to delayed health-seeking behaviour while quick fixes became the focus, resulting in the delayed presentation of the disease.

'Some women hide the problems and not report *MC* (menstrual) related problems even after 15 days of bleeding'.

(FGD-3-ASHA-5)

It was observed that the women hesitated to go for early screening. Once they started experiencing the symptoms, they either waited or preferred to go to the *Bhagat* (faith healer) who is accessible and trusted by them. It was commonly believed that somebody has cast an evil eye and that is why the person was suffering from illness. The remedies suggested by *Bhagat* are easily available and with less out-of-pocket expenditure. They only approach the health system in a critical health situation as a last option.

'Bhagat gives some rice in a piece of cloth and ties this in chanted thread on the wrist. In return, people give some amount of rice and homemade alcohol to Bhagat. If they don't get cured then they come to hospital'. (FGD-1-EW-6)

(*iii*) <u>Perceptions regarding reproductive and</u> <u>sexually transmitted infections (RTIs and STIs)</u>: Few participants elaborated on the symptoms and treatments of RTIs/STIs by sharing patient cases.

'When safed pani (white discharge) passes through the vagina, there is body pain and no power in the limbs. There is no desire to do anything'.

(FGD-4-EW-5)

(*iv*) <u>Menstrual hygiene practices</u>: Women had knowledge regarding the use of sanitary napkins, but the expenses and comfort played a role in determining its usage. While majority of them preferred cloth in the form of pieces of used fabric, sari material or towels, few of them used sanitary pads during menstruation.

'Money is required for purchasing sanitary napkins that's why not using it'.

(FGD-3-EW-6)

'I am not using pad due to itching and heat rashes. So, I am using cloth'.

(FGD-3-EW-4)

The ASHAs informed about the method used by the women for disposing or reusing the cloth.

'After washing, they keep it in a corner of the home for drying and assuring that no one can see that cloth. The cloth does not dry properly, it remains damp. And they use the same cloth all year long. We tell them to burn it after using it once or twice, even then some women do not listen'.

(FGD-4-ASHA-3)

<u>Theme 3: Health-seeking behaviour, resource</u> <u>availability and treatment</u>: Health-seeking behaviour of the tribal women was influenced by access and financial factors. ASHAs played an important role as the women felt comfortable talking to them. An ASHA was the first point of contact for them and they trusted her suggestions regarding health issues, course of treatment and access to healthcare.

'Sometimes they referred to Cottage hospital or other hospital. But we could not go as we had no money'.

(FGD-2-EW-6)

'If we are unwell, we contact ASHA. She gives information about injection and pills'.

(FGD-3-EW-4, EW-5, EW-6)

'I took one lady to the doctor in Cottage Hospital with these complaints. Doctor gave her medicine and tablet for keeping inside vagina'.

(FGD-4-ASHA-3)

'Husbands agree to send their wives only with us. The women are ready to come only after we tell them'. (FGD-2-ASHA-2, ASHA-5, ASHA-6, ASHA-7)

There was limited knowledge about NCDs screening procedures and poor access to healthcare services was observed. The women had experienced and witnessed investigations such as sonography, monitoring of blood pressure and diabetes and associated this with screening but were unaware of the purpose of the screening.

"I was feeling dizzy, so I visited Cottage hospital. Doctor took my blood on little machine and told me that you have blood sugar."

(FGD-5-EW-4)

The ASHAs elaborated on the lack of sphygmomanometers and glucometers in the HWC.

"We do not have machines, but it is available in the Anganwadi centre. Whenever there is vaccination programme, we take the BP of the women who come with their children."

(FGD-4-ASHA-3)

Poor access to transport facilities, long distance between the villages and health facilities coupled with high expenses are a major deterrent to access healthcare facilities for women and their family members.

'She was taken in a Doli (hammock) to the Doctor. In hospital, they gave medicines and blood infusion'. (FGD-2-EW-7)

One ASHA shared the case of oral cancer who faced difficulty in accessing treatment due to exorbitant costs.

'He was advised operation in a private hospital, but he did not go. Private hospital told him about 50 to 60 thousand rupees for treatment. After that he became depressed and one day, he hanged himself. He was just going only to Bhagat; his mouth was too much swollen'.

(FGD-5-ASHA-4)

Key informant interviews (KII): The provider's perspective was understood through KIIs among ANMs and CHOs.

Perspectives of auxiliary nurse midwives (ANMs): Among the ANMs, two were from PHC while seven were from HWCs with 5-10 yr of experience, while three had an experience of less than five years. Most of the ANMs had received training in per speculum, breast and oral cavity examination, diagnosis and treatment of RTIs and STIs and measurement of blood pressure while none of them had received training for visual inspection with acetic acid (VIA). Although one to five days training programme was satisfactory, they also expressed willingness to undergo further training for the screening of common cancers. They were involved in counselling the women and their partners for RTIs and STIs, drug compliance, safe sexual practices, dual protection and importance of follow up and untreated complications. Information, education and communication (IEC) activities such as health talks, group discussions and counselling on awareness of NCDs, common cancers and tobacco cessation were undertaken by ANMs and CHOs among adolescents, traditional dais, married couples and women's groups.

<u>Perspectives of community health officers (CHOs)</u>: A CHO provides basic health and medical care within their community and is capable of providing preventive, promotional and rehabilitation care to that community. They support PHC MO at primary health centre in clinical functions and monitoring public health functions of HWC¹⁸. All the interviewed CHOs were from Saravali, Kosbad, Kainad and Waki HWCs and had experience of less than one year. Only one CHO out of the four interviewed had received training for oral cancer. The CHOs revealed that while most of the patients generally opted for herbal remedies, allopathy was opted for by literate patients. Majority of the CHOs maintained registers and used computers for maintaining the records of cancer patients. The KIIs highlighted that unavailability of equipment, lack of training and IEC materials at the primary level were major challenges to the screening of NCDs and common cancers.

Facility survey of the healthcare facilities: The HWCs were located in government building, 7-12 km from the main PHC requiring 20-25 min as per transport availability. The staff at HWCs comprised CHOs, staff nurses, ANMs and ASHAs while the PHC staff comprised lady health visitors, health assistants, health educators, laboratory technicians, pharmacists, record keepers and driver in addition to aforementioned HWC staff. Majority of the HWCs had examination room and toilets while only the PHC had a laboratory in addition to the aforementioned HWC facilities. Some subcentres had lack of access to potable water and electricity. Neither the PHC nor the HWCs provided VIA screening for cervical cancer, Pap smears and RTI/ STI testing but referred patients to a district hospital. Medicines to treat common ailments affecting females like RTIs and STIs were not available at any of the surveyed health centres. Furthermore, essential medicines such as anti-hypertensive and antidiabetic drugs were scarcely available at few HWCs. The gynaecological examination tables were available in all HWCs, but other essential equipment such as gynaecological examination lamp. speculums, autoclave and sterilizer were either scarcely available or available in non-working conditions. In the PHC as well as HWCs, all infection prevention and waste disposal guidelines were available and followed. Although digital as well as manual sphygmomanometers were available, there was limited availability of haemoglobinometer, glucometer and their respective test strips required for NCD screening. IEC materials in the form of posters regarding NCDs and digital copy of cervical cancer screening and RTI/STI management guidelines were available in some of the HWCs (Table II). Thus, the facility survey showed that screening facilities were poor in all the facilities, thereby corroborating the responses of the healthcare providers.

Discussion

The present study highlights the enablers and challenges for the screening of NCDs and common cancers as identified by tribal women and healthcare providers of Palghar district in Maharashtra, India. The study insights are relevant for improving community participation and improving health system preparedness for planning interventions for effective implementation of the NPCDCS through the HWCs at the grassroots level.

Limited knowledge regarding NCDs and common cancers, their causes, risk factors and symptoms was observed among the participants. These findings corroborate with similar studies done in rural and urban communities of India^{19,20}. High illiteracy among tribal women is an important barrier as only 35.6 per cent of study participants were literate in comparison with the national average of 65.46 per cent for female literacy²¹. An Indian study mentions that at district level, although both poverty and literacy predict public health, literacy has more effect than poverty on the health of the individual²². This finding is important in developing IEC strategies and health awareness programmes with an emphasis on pictorial messages and role plays compared to written information. Community-level factors such as knowledge, attitudes and access to screening services along with effective communication targeting eligible women may increase the uptake of screening²³. It was observed that the consumption of tobacco and alcohol among participants was high despite their awareness that such substances cause cancer, emphasizing the need for behavioural change communication (BCC). The participants did not have knowledge about lifestyle risk factors such as poor diet, high salt intake and stress being causes for hypertension and diabetes. Our results of low awareness regarding the prevention of NCDs through lifestyle modification were concurrent with an Indian study which was conducted among adults from 188 urban and 175 rural areas which reported that only 39.6 per cent of females knew about diabetes²⁰.

The practice of majority of the tribal men having multiple sexual partners was acceptable by the tribal women as is also observed in other tribal populations²⁴. This practice exposed the women to increased risk of

Table II. D	etails of facility su	rvey from Ashagad health	centre and health and well	ness centres	
Facilities	Ashagad PHC	Saravali HWC	Waki HWC	Kosbad HWC	Kainad HWC
		Screening tests			
Per speculum examination	~	Refer to district hospital	~	~	Refer to district hospital
Oral cavity examination	~	Refer to district hospital	~	~	~
Clinical breast examination	Refer to district hospital	Refer to district hospital	7	~	Refer to district hospital
Estimation of haemoglobin	~	Refer to district hospital	Refer to district hospital	Refer to district hospital	Refer to district hospital
Estimation of random blood sugar	~	Refer to district hospital	~	Refer to district hospital	Refer to district hospital
		Equipment			
Gynaecological examination table	7	~	7	~	~
Examination lamp	Not available	~	Not available	Not available	Not available
Sims and Cusco's speculum	~	Not available	Not available	~	Not available
Sterilizer	~	Not available	~	Not available	~
	Ora	l drugs and local application	on medicines		
Anti-diabetic drugs	7	Not available	Not available	Not available	7
Anti-hypertensive drugs	Not available	Not available	~	Not available	Not available
RTI/STI kits	Not available	Not available	Not available	Not available	Not available
Clotrimazole cream	Not available	Not available	Not available	Not available	Not available
Clotrimazole vaginal pessaries	Not available	Not available	Not available	Not available	Not available
		IEC materials			
NCDs	Not available	Posters available	Not available	Not available	Not available
Breast cancer screening	Not available	Not available	Not available	Not available	Not available
Oral cancer screening	Not available	Not available	Not available	Not available	Not available
Cervical cancer screening	Not available	Not available	Not available	Not available	Not available
RTIs/STIs	Not available	Not available	Not available	Not available	Not available
Menstrual and genital hygiene	Not available	Not available	Not available	Not available	Not available
	Ava	ailability of service deliver	y guidelines		
RTIs/STIs clinical management guidelines	Not available	Not available	Not available	Digital copy available	Not available
Cervical screening guidelines	Not available	Not available	Not available	Digital copy available	Not available
Infection prevention and waste disposal guidelines	Available	Available	Not available	Available	Available
PHC, public health centre; HWCs, health and wel diseases; IEC, information, education and commun	llness centres; RTIs nication	, reproductive transmitted	infections; STIs, sexually	transmitted infections; N	ICDs, non-communicable

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RTIs/STIs. The prevalence of STIs in tribes of Central India was twice in women (17.6%) as compared to men, and vaginal discharge was the most common syndrome²⁵. Despite this, the tribal women had limited knowledge about RTIs/STIs which is an important risk factor for cervical cancer. Unsafe menstrual hygiene practices further compounded this which is also validated by a study conducted in Gujarat²⁶.

Our findings of perceived stigma, unwillingness to undergo a gynaecological examination, fear of discrimination and cancer related fatality were major barriers for uptake of screening, thereby leading to late diagnosis and poor survival in rural populations, as also observed in another study²⁷. Barriers such as inability to leave household chores, labour, high expenditure, poor transportation facilities, lack of approval from husbands and family responsibilities influenced the perceived severity of the diseases, leading to a delayed treatment-seeking behaviour of these women. These findings were similar to a study identifying barriers of women to compliance in a cervical screening programme²⁷. The long distance between the health facilities and their homes was also observed as a major deterrent, thereby preventing tribal women from accessing healthcare facilities. The participants cited faith, affordability, proximity and accessibility as reasons for visiting the local traditional healers (Bhagats) when they suffered from any ailment. Belief on superstitions, traditional medicines and unproven alternative methods and approaching health facilities only as the final option subjected the women to an increased risk of progression and delayed treatment of diseases.

The FGDs and KIIs revealed the existing challenges for the screening of NCDs and common cancers from the health system perspective as well. Strong trust of tribal women in ASHAs was identified as a major enabler in the present study is in concurrence to a previous report²⁸. ASHAs demonstrated good knowledge about the NCDs and common cancers and their causes and symptoms which could be attributed to the NCD training and discussions with ANMs and CHOs²⁸. Although ASHAs had significant knowledge, poor availability of screening instruments, lack of IEC materials and inconsistent supply of electricity and water undermine their efforts in referring patients for treatment. On provision of the aforementioned facilities, the ASHAs can act as potential conduits of knowledge in their communities for health education, dispelling myths and motivate tribal women for

screening. Trained and experienced healthcare providers are an important asset in tribal areas. Most of the KI interviewees expressed enthusiasm to undergo hands-on training. The facility survey and KII revealed an inadequacy of screening resources in healthcare centres in comparison with standards recommended by IPHS for PHCs and HWCs^{15,16}. Thus, the healthcare facilities need to be upgraded in terms of infrastructure, equipment and trained workforce to implement screening services. The operational guidelines of NPCDCS for PHCs and HWCs recommend health promotion, opportunistic screening of diabetes and blood pressure, awareness generation and identification of early signals of common cancer. However, with proper training, infrastructure and involvement of ASHAs in community engagement, the screening of common cancers can also be implemented effectively through HWCs²⁹.

In conclusion, socioculturally relevant strategies to improve the screening of NCDs and common cancers are suggested in tribal populations. IEC and BCC interventions in local dialect with folk songs and role plays are of utmost importance to improve community awareness and health-seeking behaviour³⁰. Health education to address male involvement, safe sexual and menstrual hygiene practices and early diagnosis of RTIs/STIs can help in reducing the risk factors for cervical cancer. Doorstep or workplace screening and measures such as self-sampling for HPV test for primary screening of cervical cancer can improve the uptake of screening³¹. Improving screening facilities and providing appropriate training in simple techniques such as measuring blood pressure, blood glucose and VIA to all levels of health workers, educating and involving traditional healers and self-help groups for referring women and strengthening referral linkages for screen positives are important health system interventions which are required. ASHAs form the key connecting link between the tribal women and the health system, and they have the potential to drive NCD services effectively with appropriate training, supervision and incentives. A larger implementation study with a formative research component needs to be planned in different tribal populations of India to develop relevant implementation strategies. A multistakeholder approach addressing regional challenges and involving an interplay of enablers will go a long way in effective implementation of the NPCDCS through the HWCs to reduce the burden of NCDs and common cancers in the underserved tribal areas.

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