

Original Research Article

Screening and health promotion for non-communicable diseases, malignancies and associated risk factors in integrated child development services functionaries of Panvel Taluka, Maharashtra

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ABSTRACT

Background: Anganwadi workers play an important role in providing health care to mother and child. As an appreciation to their contribution, 'Screening and Health Promotion Project' was launched. Objectives of this study were to study the prevalence of hypertension and diabetes. To screen for oral cancer, breast malignancies cervical cancer. Associated risk factors with the above NCDs. Health promotion by T.A.L.K method.

Methods: It was an observational study with an all-inclusive sample of 315 Anganwadi Sevikas and Madatnis from randomly selected 3 PHCs of Panvel Taluka for one year. Modified community-based assessment checklist form was used for data collection. Descriptive statistics Chi Square and t test were applied using Microsoft Excel and SPSS 27 for statistical analysis.

Results: Amongst all the participants raised blood sugar was found in 12.69%, raised blood pressure in 13.96%, and high stress in 49% of participants. The less than 39 years aged participants had 44% of the raised B. S, 42.8% of raised BP, 41% of the higher stress. Consumption of smokeless products was strongly related to High Blood Pressure P 0.019. Two known cases of breast cancer and one case of cervical cancer were found. Pap Smear test detected bacterial vaginosis in 18.36% and inflammation in 42.8% of the participants providing consent.

Conclusions: The younger strata of Anganwadi workers presenting noticeable increase in B.S, B.P, obesity and stress highlights the need of early and periodic screening, health promotion and awareness sessions for NCDs and malignancies.

Keywords: NCD, Risk factor, Screening, Pap Smear, T.A.L.K. method, Anganwadi workers

INTRODUCTION

India has seen many improvements in the health sector; However, the Non-Communicable Diseases (NCDs) have

risen up as new challenges for the medical fraternity. The NCDs are the reason to around 5.87 million (60%) of all deaths in India.¹ An alarming rise in NCDs increases morbidity, mortality and suffering of the patient. The life

long and expensive treatment, cause financial loss to the family, drains their savings for better future and reduces development of the country remarkably.² Thus our research focuses on important NCDs like diabetes mellitus, hypertension, the common cancers, oral, breast and cervical cancers. These NCDs become even more of an important issue in grass root level health workers like the Anganwadi workers due to multiple factors. Diabetes mellitus has come up as a firsthand task to be addressed. An estimated 77 million people suffering from diabetes mellitus.³ India has the highest number of diabetes mellitus cases and one third of the adult Indians are hypertensive, so it has become a substantial load on the healthcare sector.⁴ Urban Indian women have above 24% prevalence of overweight and obesity.⁵ Stress is seeping into the daily lives of the general population wide and large. A staggering high of 87% of Indian women are stressed most of the time.⁶ The burden of oral cancer has increased so much that it ranks the third in women suffering from cancer.⁷ Breast cancer and cervical cancer are the most common in Indian women.⁸ Breast cancers are often detected late; self-breast examination is an easy method which can be done by women themselves. This helps to detect breast cancer in early stages.⁹ Cervical cancer has a long latent period and often goes unnoticed. Pap Smear test is the primary screening technique which can prevent 80 % of the cases.¹⁰ The Anganwadi sevikas and madatnis are the community level workers in the rural, semi urban and tribal areas ensuring services reach the most vulnerable population. The Anganwadi workers have extensive field work which leads to irregular meals and stress as a side effect. As an appreciation and gratitude towards their relentless service, the NCD Screening was taken up for an active search of disease in apparently healthy sevikas

Objectives

To study the prevalence of hypertension (HTN) and diabetes mellitus (DM) in Anganwadi sevikas and madatnis of Panvel Taluka. To screen them for oral cancer, breast malignancies by clinical breast examination (C.B.E) and self-breast examination (S.B.E) and cervical cancer using Pap smear test. To understand risk factors associated with the above NCDs in integrated child development scheme functionaries. Health promotion by T.A.L.K. (Tell, Advise, Lead, Know) for prevention, emphasizing importance of early detection, effective management of hypertension, diabetes, oral cancer, breast cancer and cervical cancer.

METHODS

It was an observational study conducted over the duration of one and a half year from June 2023 to December 2024. Panvel Taluka consists of five PHCs; three out of them were selected randomly for the study. The Anganwadi workers (AWW) coming under these PHCs were considered for the screening with an all-inclusive sample size of 315 participants. Participants who provided

voluntary consent with consent form A for assessment were included in the screening program and consent form B was filled for those opting for Pap smear test. Permission for the study was obtained from the Integrated Child Development Services (I.C.D.S.) Officer, Panvel. Approval for the study was taken from the Institutional Ethics Committee. Statistical analysis of the collected data was performed using descriptive statistics like frequency and percentages. Test of significance like t test, Chi Square test were done. The data was analyzed using Microsoft Excel and SPSS version 27.

Study details

The participants were registered and an assessment of 20 questions was conducted. For this, a pre-tested and pre-validated questionnaire approved by Public Health experts of 10 questions for DM, HTN and 10 questions for Oral Cancer, Breast Cancer, and Cervical Cancer was used. T.A.L.K (T-Tell, A-Advise, L-Lead, K-Know) method was used for the counselling. A Pictorial PPT of the NCDs for introduction, symptoms, complications, prevention, importance of yoga and exercise, meditation, diet control measures and Pap Smear test was explained to them by the Public Health Nursing officer and Medical Officers in the local language Marathi. Audio and visual aids like posters and leaflets for N.C.Ds, videos for S.B.E and for awareness of C.C were shown. A Post test was conducted on the same questionnaire afterwards to assess the effect of counselling on their overall awareness. Three months later a Retain test was conducted on the same questionnaire to assess the knowledge retained by them. Stress assessment was done by a questionnaire using the 5 Point Standard Likert Scale. After the counselling session, consent form A was taken for screening of D.M, H.T.N, obesity, oral cancer and breast cancer. Participants willing to go for Pap smear test gave their consent-on-consent form B. demographic status, personal details, anthropometric readings were noted. A modified community-based assessment checklist (C.B.A.C) form of the National Program for Non-Communicable Diseases (N.P.N.C.D.) was used for the screening. The participants were assessed by Medical Officers for risk assessment of age, consumption of smokeless tobacco products and alcohol, waist score, physical activity and family history of DM, HTN, and CVD. A zero to four score was considered low risk while five to nine score was a high-risk score. As per the Government guidelines a score above four is at a risk of developing the NCDs and the person is advised to undergo yearly checkups for raised sugar and B.P and five yearly checkups for Oral cancer, breast cancer and cervical cancer.¹²

Their medical, surgical, family histories, present illness, medications, menstrual and obstetrical history, B.M.I, 24-hour dietary recall, energy consumption were checked. Their systemic examination done, clinical breast examination was performed and self-breast examination was taught to the participants. Oral visual examination (O.V.E) of the buccal cavity was performed to check for

any lesion. Random blood sugar of more than 140 mg/dl was considered as high B.S, and B.M.I of more than 23 were considered overweight or obese and B.P. more than 140/90 was considered as high.¹¹ Participants having BP over 140/90 mmHg were checked on three occasions, half an hour apart each for confirmation of high BP. High RBS and high BP or any other serious illness were referred to Sub Divisional Hospital (S.D.H) for consultation, further tests and medication.

The participants having gynecological issues and/or willing for Pap smear were taken for the test after they gave their voluntary written informed consent on Consent form B. The cytology forms were filled; history taken, visual observations were noted. The samples were coded, blinded and sent to tertiary centre, with all aseptic and precautionary measures. The Pap smear reports were collected and participants were called to consult the gynecologist for their reports and other gynecological issues. The data was cleaned, coded for smooth data interpretation. Descriptive statistics were used for statistical analysis. The statistical tests like t -test and Chi Square test were applied. The data collected was analyzed on Microsoft Excel, and SPSS version 27.

RESULTS

The participants were checked for R.B.S, B.P, B.M.I and Stress. The results were found to be according to the following Figures.

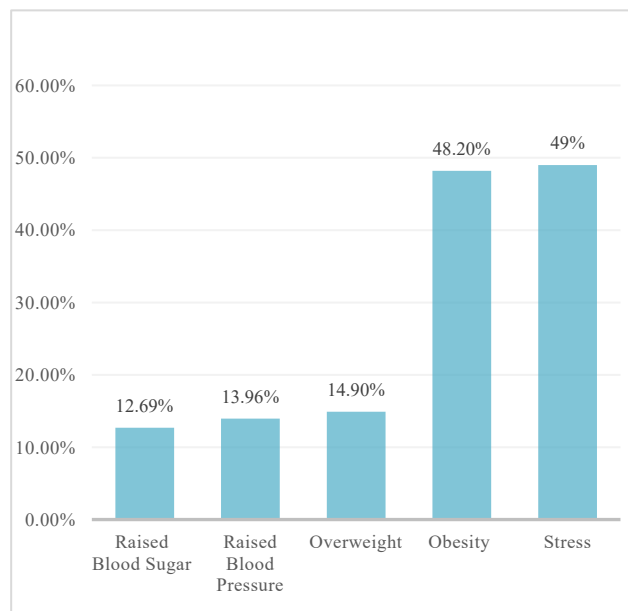


Figure 1: Random blood sugar > 140 mg/dl, blood pressure >140/90 mmHg, overweight and obesity-body mass index >25.

In total of 315 participants, 256 (81.26%) were in low-risk score that is 0 to 4 and 59 (18.73%) were in high-risk score 5 to 9 score. A low score does not exclude them from NCD but a regular checkup is required.

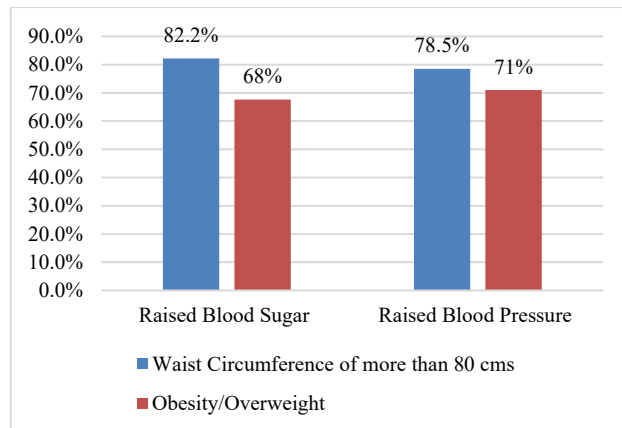


Figure 2: Raised blood sugar and blood pressure in patients with overweight and obesity and waist circumference of more than 80cms. BP with obesity /overweight Pearson Chi Square 6.842, Asym sig P 0.05.

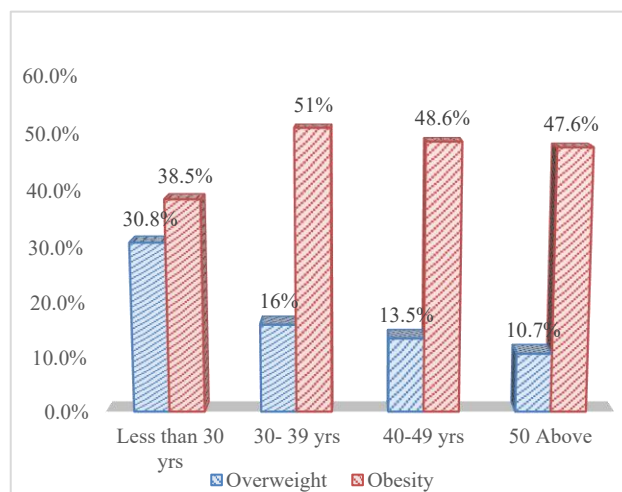


Figure 3: Prevalence of obesity and overweight in relation to age.

Amongst all those with Raised Blood Sugar, 82.2% (28) of them had a waist circumference of more than 80 centimeters and 68% (23) were obese or overweight. Amongst all the participants with Raised B.P. 78.5% (22) of them had abdominal obesity i.e. a waist circumference of more than 80 centimeters and 71% (20) of them were obese or overweight. There was a positive co-relation found between raised BP and Obesity with. P 0.05 is significant.

In the 30-39 years age group, 51% (48) of the participants were obese. The Pearson Chi Square value is 10.8 and P 0.017 thus showing it is highly significant. The highest 30.8% (8) of overweight status was found in less than 30 years of the participants, who can develop into obesity in later stages of their lives. There was a decrease in obese status in more than 50 years at 47.6% (40).

The less than 39 years age group suggested the results as according to the graph. The notable increase in mortality and morbidity in the most productive phase of their lives is alarming and posing a serious health challenge to them.

Raised B.P. was found in 30% of the participants consuming smokeless products sometimes and 28% of the participants taking every day. Thus, the correlation between hypertension and consumption of smokeless product was found to be statistically significant $P=0.019$.

The mean pretest score was 65.71 which increased to 71.39 for the post test. The Retain test had a mean score of 71. This was found to be statistically significant with $P=0.001$. It represents the increased awareness of the participants through counselling and they have retained the knowledge gained through it.

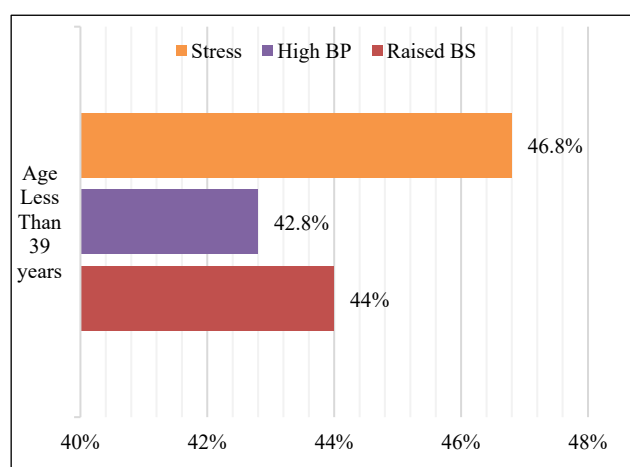


Figure 4: Observations in less than 39 years age group.

The participants referred for raised random blood sugar and raised B.P were contacted after two months to check for their further course of action. Medications were started for raised blood sugar by 41.1% (14) of the participants at P.H.C or at private medical centers for raised Fasting and Post Prandial sugar. The Fasting Blood Sugar (F.B.S) levels were found to be within normal range in 20.5% (7) participants when checked later. The FBS was neither checked nor any medication was started by 8.8% (3) of the referred participants while 29% (10) of them could not be contacted. Similarly, medications were started for raised BP by 53.57% (15) of the participants. while, 21.4% (6) could not be contacted. Known cases have continued their medications for DM and HTN.

No case of oral cancer was found in the study participants. Two known cases of breast cancer were found who had been operated for the same and were under regular follow ups. Six cases of breast lump were detected who were advised for U.S.G breast by the gynecologist. One known case of cervical cancer who has been cured was found. No Pap smear test was positive for cervical cancer. However, the Pap smear test detected 85

% (42) of the participants suffering from vaginosis, inflammation or both.

Table 1: BP in relation with consumption of smokeless products (Pan, masheri).

	Never	Sometimes	Everyday	Total
Normal B.P.	273	7	7	287
High B.P.	23	3	2	28
Total	296	10	9	315
Percentage	9%	30%	28%	

Table 2: Observations of Pap smear test.

S. no.	Disease	Number	Percentage (%)
1	Vaginosis	09	18.36
2	Vaginosis with inflammation	21	42.85
3	Inflammation	12	24.48
4	Negative	07	14.28
Total		49	100

Three participants with infection were widows who harbored the infection for a longer time without any symptom, so annual checkup is required and were advised for the same.

DISCUSSION

The study was an observational study aimed to detect overall prevalence of NCDs and their associated risk factors and to understand its magnitude in Anganwadi workers.

To lessen the impact of NCDs on individuals and society, a comprehensive approach is needed including health education, medication, reducing the associated risk factors, and to promote interventions to prevent and control them.¹² Little attention is paid to the hypertension care cascade.¹³ Blood sugar monitoring, stress management, maintenance of appropriate weight are equally important.

Various other authors found similar observations in their studies. A Ramachandran and C Snehlata et al found DM prevalence 12% in six major cities, in all the regions of the country.¹⁴ Anganwadi workers were also found to have 12.69% prevalence for DM. Low physical activity was found in 37% of them. The chronic disease of D.M affecting every part of the body is majorly due to change in lifestyle of calorie rich food with little physical activity. D.M can be prevented and its complications arising in later stages of life can be delayed with behavioral changes with extensive counselling sessions.

Kadu et al found that overall prevalence of HTN in rural community of Central Maharashtra was 12.52% in women.¹⁵ Similarly, Kharde et al found the prevalence of hypertension was 11.49% in his study Western

Maharashtra.¹⁶ Our study findings suggest raised BP to be of 13.96% in Anganwadi Workers. Amongst these the younger population of less than 39 years age group had the highest prevalence of high B.P at 42.4% which is dangerous in the later stages of life. It is a silent killer disease and general population is slow to start medication. It leads to failure to achieve optimal BP from the time of screening and detection. Consequently, it emerges as a prominent public health problem, especially in places with inadequate resources.

Patel et al found prevalence of stress was at 37% in Indian women in her study named Impact of occupation on stress and anxiety among Indian women.¹⁷ The study population of AWW showed that 49% of them had higher stress level. In less than 39 years age group 46.8% of the participants had higher stress. In more than 50 years aged Anganwadi workers, 56% of them had high stress. Thus, we interpret that the young and the old are stressed for some or the other reasons. Tending to the family commitments, achieving the job targets give them less time to relax and rejuvenate which intensify stress in the long run.

Bindhu et al in his cross-sectional study on adults in a rural area in Trivandrum found the prevalence of overweight and obesity was 24% and 40.7% respectively.¹⁸ Overweight and obesity prevalence was found at 14.9% and 48.20% in AWW. Almost 51% of them had higher calorie intake which give rise to overweight and later to obesity. The less than 30 years age participants had highest overweight at 38.2% which is alarming as they may develop into obese with advancing age, little physical activity and calorie rich, and less fibre food.

Kalra et al in his study found the highest prevalence of obesity in subjects aged 35-44 years of women in India.¹⁹ The highest prevalence of obesity found in the age group of 30-39 years in Anganwadi Workers.

Chaudhary et al found the prevalence of abdominal obesity in the country to be 40% of women in Abdominal obesity in India: analysis of the National Family Health Survey-5 (2019-2021) data.²⁰ The prevalence of abdominal obesity was found to be 77% in Anganwadi sevikas and madatnis. The abdominal obesity in turn give rise to various diseases Health education on community level by awareness sessions and mobilization on a larger scale especially of the high-risk group.

Bhatt et al found in her study that high systolic blood pressure was associated with age, high BMI, low level of education, and quantity of Smokeless Tobacco with value <0.05 for each of the variables.²¹ In the present study participants consuming smokeless products had raised BP. It was found to be statistically significant $p < 0.019$. About 8.8% (28) of the participants accepted for their consumption of smokeless products. Masheri, roasted tobacco leaves were the most frequently used smokeless

product in application form by Anganwadi Workers, followed by Pan and tobacco chewing. Cessation of consumption of smokeless products by regular Information, Education and Communication (I.E.C) activities, awareness programs, monitoring and surveillance will effectively control this habit.

The overall awareness for the NCDs is low and women tend to ignore the first noticeable changes in the body for their inhibitions of opening up for their problems which in turn is very dangerous especially for breast and cervical cancer. S.B.E. is not done due to non-awareness and C.B.E. is far behind. Early detection and extensive medical intervention within the safe time is very important as it is curable in early stages. They were encouraged to perform S.B.E. on monthly basis so any minute changes can be detected by them and they can seek early medical attention.

No Pap smear test sample was found positive for cervical malignancy. The mean age at menopause for Indian women as 46.64 years.²² The median age of menopause in our study group was 47 years. The Pap smear reports were suggestive of bacterial vaginosis (B.V) and Inflammation predominantly in the study participants of AWW of pre-menopausal and post-menopausal age. Antibiotics were advised for the same. In relevant cases, repeat Pap smear test was advised to be done six months later. BV is the most common in reproductive aged women.²³ Reduced acidity, sexual exposure, infectious organisms, allergy, irritation, shift in the balance of bacteria increase risk of inflammation or infection.²⁴ In post-menopausal stage the estrogen level is decreased which causes vulvovaginal dryness and irritation.²⁵ We assume that they have motivation failure in terms of getting the treatment and the desire to open up for their problems despite being in the field of mother and child care and often getting exposure to the medical facilities. They are unaware, undiagnosed and hesitant to seek medical treatment and abide with it for long time.

With this we interpret that such type of screening should be taken up on a larger scale for the benefit of health workers of our country. Introduction of Health and Wellness Centers (HWC) at village level will focus on NCDs

Novelty factor

Anganwadi sevikas and madatnis have been missed for the screening of the NCDs in the past which was essential for the wellbeing of the grass root level workers who serve wholeheartedly and their contributions often go undermined.

Limitations

We checked the participants for random blood sugar. For confirmation of DM, fasting blood sugar (F.B.S), post prandial blood sugar (P.P.B.S) and glycosylated

hemoglobin (Hb1AC) is needed. Similarly, regular blood pressure monitoring is needed to confirm the patient for Hypertension. Fibroadenoma cases were advised for U.S.G breast by the gynecologist for confirmation and need to be sent to higher centers which could not be done due to resource limitations. Overall, the confirmatory tests could not be done for the disease due to feasibility issues. Only screening was done for the NCDs.

CONCLUSION

Screening for NCDs and malignancies in high-risk groups, proactive primary care services and training the concerned medical staff are needed for the benefit of the government functionaries. The individual level Primary Prevention like dietary modifications, cessation of consumption of smokeless products, availability of screening facility is utmost important. Counselling and awareness programs at Health and Wellness Centers with a holistic and multidimensional approach is needed.

The positive effect of this study was that a state level screening for NCDs and malignancies for the Anganwadi sevikas and madatnis was initiated by the I.C.D.S Commissioner of Maharashtra.

Recommendations

The study in Anganwadi workers shows their vulnerability to the NCDs and malignancies. So various awareness programs like rigorous health promotion for cessation of smokeless products, relaxation techniques like yoga, pranayama, meditation, exercise to be inculcated in daily lives. The younger population should be sensitized for individual level Primary Prevention, so it can be incorporated as a habit and be continued for lifetime.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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