

**STRENGTHENING PATHWAYS TO PREVENTION: ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE FOR NON-COMMUNICABLE DISEASE SCREENING AMONG COMMUNITY HEALTH OFFICERS IN AGRA DISTRICT.****Dr. Shivangi Agrawal***Junior Resident, Community Medicine Department, S.N. Medical College, Agra
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ABSTRACT Non-communicable diseases present a major health challenge, including in India. According to the World Health Organization report of 2023, NCDs account for approximately 41 million deaths annually, which constitutes 74% of total global mortality. ¹ This cross-sectional study conducted between January 2024 and March 2024, aimed to evaluate the Knowledge, Attitude and Practice of Community Health Officers regarding NCDs. A total of 208 CHOs were approached telephonically and 136 responded. Data collection was facilitated using a structured and pre-validated questionnaire distributed via Google forms. Analysis revealed 5.1% of CHOs exhibited high knowledge, 35.3 % moderate knowledge while 59.6% demonstrated low levels of understanding. Significant associations were observed between knowledge levels and training frequency ($\chi^2=13.8$; $p=0.032$) and age ($\chi^2=6.61$, $p=0.03$). Although CHOs demonstrated positive attitude towards rising burden of NCDs in India, inconsistencies in screening practices were identified.

KEYWORDS : Community Health Officers (CHO), Non-Communicable Disease (NCD), Screening**INTRODUCTION**

The Ayushman Bharat initiative marks a transition from selective healthcare interventions to a more comprehensive approach that integrates preventive, promotive, curative, rehabilitative and palliative care. Health and Wellness Centres (HWCs) were introduced under this program to provide an expanded range of healthcare services beyond maternal and child health. These services encompass NCD management, palliative and rehabilitative care, mental health services, oral, eye and ENT care as well as emergency and trauma management along with free essential medicines and diagnostic services.²

By 31st December, 2022, the Ayushman Bharat program successfully established and operationalised 150,000 HWCs.³ The National Health Policy 2017 of India identified these centres as the cornerstone of India's healthcare system.⁴ Community Health Officers (CHOs), as a newly introduced cadre of non-physician healthcare providers play a crucial role in leading primary healthcare teams, managing ambulatory care and ensuring continuity of care within the community.^{5,6}

NCD screening, prevention, control and management for individuals above 30 years of age form one of the twelve essential services offered at HWCs.⁷ In response to the growing burden of conditions such as diabetes, hypertension and the three most common cancers (oral, breast and cervical), the government of India has implemented a Population Based Screening (PBS) initiative at both community and primary healthcare levels.⁷

AIM & OBJECTIVE

The study aims to assess the Knowledge, Attitude and Practice of Community Health Officers towards Non-Communicable Disease screening at Ayushman Bharat Health and Wellness Centres.

MATERIALS AND METHOD

A cross-sectional study was conducted in Agra district, Uttar Pradesh between January 2024 and March 2024. We included CHOs appointed at Ayushman Bharat Health and Wellness Centres and were working for more than 3 months. This inclusion criterion was chosen based on the understanding that CHOs undergo a three-day induction training within three months of their appointment, thereby allowing them to acquire foundational knowledge relevant to their role. After the ethical clearance from Institute Ethics Committee (SNMC/IEC/2024/201), we employed convenience sampling, leveraging the accessibility of CHOs through telephone.

We contacted the District Program Manager who facilitated us with the contact details of all Block Program Managers (BPM) of the district. There are 15 blocks in the Agra district and at the time of study, there were 14 BPMs appointed in the district. We contacted all 14 BPMs who provided us with the list of CHOs appointed in the district. The list had 233 CHOs. Among 233, 19 were newly appointed (working < 3 months) and 6 were on leave, thus 25 CHOs were excluded. 208 CHOs

in the district were invited one to one telephonically to participate in the study and 136 provided consent forming the study sample.

After taking the verbal consent from the CHOs, a Google form was sent to them that contained our pre-tested, semi-structured questionnaire. The questionnaire assessed their knowledge, attitude and practices regarding NCD risk factors and screening processes.

Following data collection, the responses were organized and analysed using Microsoft Excel 2021 and jamovi version 2.4.8, respectively. Descriptive statistics were employed to summarize the quantitative variables, providing a clear overview of key demographic and outcome measures within the sample. The knowledge of CHOs was evaluated by Bloom's cut off for knowledge score⁽⁸⁾ where score above 80% is taken as High, 80-60% is taken as Moderate while score below 60% is taken as Low. Chi-square tests were applied to assess associations between variables with statistical significance set at $p<0.05$.

OBSERVATIONS AND RESULTS

208 Community Health Officers (CHOs) were contacted telephonically out of which 136 (n) consented to take part in the study and filled the Google form forming the response rate of 65.4%. The observed mean age of CHOs was found to be 27.2 years with Standard Deviation of 3.80. The sociodemographic details are describes in Table 1. Males predominated with a gender ratio of 3:1. The analysis of Knowledge score revealed High level, Moderate level and Low level of knowledge towards Non communicable diseases and screening was 7 (5.1%), 48 (35.3%) and 81 (59.6%) respectively. (Table 2)

Table 1: Sociodemographic Details Of Study Participants (n=136) (Original)

Variables	No. of participants (%)
Gender	
Male	100 (73.5)
Female	36 (26.5)
Work experience	
3- 6 months	18 (13.2)
6-12 months	31 (22.8)
13-24 months	49 (36.0)
> 24 months	38 (27.9)
Age	
<30 Years	97 (71.3)
≥30 Years	39 (28.7)
Education	
M.Sc Nursing	2 (1.5)
B.Sc Nursing	99 (72.8)
GNM Nursing	35 (25.7)

SES (according to modified BG Prasad scale 2023)	
Upper	44 (32.4)
Upper Middle	65 (47.8)
Middle	15 (11.0)
Lower Middle	9 (6.6)
Lower	0
Not revealed	3 (2.2)
Frequency of training received	
Once a week	45 (33.1)
Once a month	50 (36.8)
Once in 2 months	17 (12.5)

once in 6 months	24 (17.6)
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Table 2 shows the association of Knowledge scores with other variables. Data analysis revealed a significant association between knowledge score and age of the study participants (Chi square: 6.61, p value: 0.03). The results indicate that CHOs aged 30 years or older had a higher percentage (12.8%) in the High knowledge category compared to those under 30 years (2.1%). The data analysis also revealed a statistically significant association between the frequency of training received and the knowledge score among Community Health Officers (CHOs) (Chi square: 13.8, p value: 0.032). The results showed that CHOs who received training once a month or once in 6 months had a higher percentage in the High knowledge category compared to those who received training less frequently.

Table 2: Association Of Variables With The Knowledge Score Of Study Participants (n=136) (Original)

	High	%	Moderate	%	Low	%	Total no of CHOs	Statistical analysis
Total	7	5.1	48	35.3	81	59.6	136	
Gender								
Male	6	6.0	39	39.0	55	55.0	100	Chi square: 3.32
Female	1	2.8	9	25.0	26	72.2	36	p value: 0.19
Work experience								
3- 6 months	1	5.6	7	38.9	10	55.6	18	Chi square: 3.34
6-12 months	0	0.0	11	35.5	20	64.5	31	p value: 0.76
13-24 months	3	6.1	19	38.8	27	55.1	49	
> 24months	3	7.9	11	28.9	24	63.2	38	
Age								
<30 Years	2	2.1	35	36.1	60	61.8	97	Chi square: 6.61
≥30 Years	5	12.8	13	33.3	21	53.9	39	p value: 0.03
Educational qualification								
M.Sc Nursing	0	0.0	1	50.0	1	50.0	2	Chi square: 1.58
B.Sc Nursing	4	4.0	61	61.6	34	34.3	99	p value: 0.81
GNM Nursing	3	8.6	13	37.1	19	54.3	35	
SES (according to modified BG Prasad scale 2022)								
Upper	2	4.5	15	34.1	27	61.4	44	Chi square: 4.9
Upper Middle	5	7.7	25	38.5	35	53.8	65	p value: 0.56
Middle	0	0.0	3	25.0	12	80.0	15	
Lower Middle	0	0	4	44.4	5	55.6	9	
Not revealed	0	0.0	1	33.3	2	66.7	3	
Frequency of training received								
Once a week	0	0	9	20	36	80	45	Chi square: 13.8
Once a month	4	8	21	42	25	50	50	p value: 0.032
Once in 2 months	1	5.88	9	52.94	7	41.18	17	
Once in 6 months	2	8.33	9	37.50	13	54.17	24	

Figure 1 presents the Frequency Distribution Curve of Knowledge Score of CHOs. As we can see from the diagram the curve is negatively skewed indicating that there are some CHOs with significantly lower scores. Mean knowledge score was found to be 8.91 with Median score of 9 and a Standard deviation of 2.25. The highest score observed was 14 while the lowest score was 2, where as the maximum score was 15.

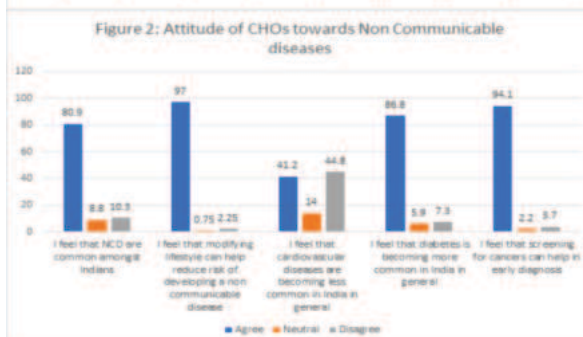


Figure 2 shows the Attitude of participants towards NCDs. The attitude of CHOs was majorly positive towards increasing trend of NCDs in general in India. More than 90% of them feel that screening for cancers can help in early diagnosis and modifying lifestyle can help reduce risk of developing a non-communicable disease. Around 87% of CHOs “feel that diabetes is becoming more common in India in general.” While there are some differences in attitude towards increasing trend of cardiovascular diseases in India. 41.2% CHOs “feel that cardiovascular diseases are becoming less common in India in general.”

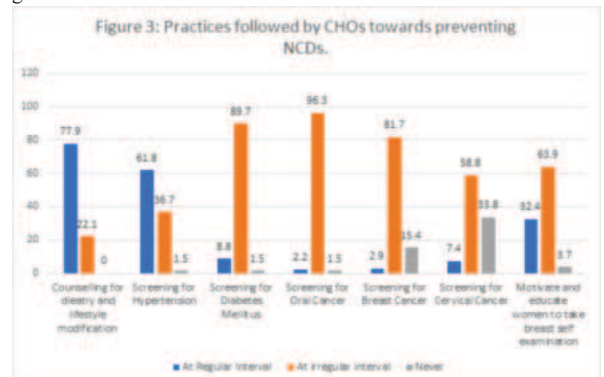


Figure 3 depicts the practices followed by CHOs towards preventing NCDs. Around 80% of CHOs are counselling regularly for dietary and lifestyle modification to reduce the risk of developing an NCD. More than 60% of CHOs are doing screening regularly for Hypertension. Around 90% of CHOs are screening for diabetes but at irregular interval. The major reasons as reported by them for this irregularity is lack of resources like inadequate supply of glucometer strips.

DISCUSSION

India is witnessing a rising prevalence of NCDs, posing a significant health challenge. According to a 2015 report by WHO, NCDs like diabetes, cancer, cardiovascular diseases and strokes claim approximately 5.8 million lives annually in India. The Ministry of Health and Family Welfare (MoHFW) has been actively working to formulate policies and implement intervention strategies aimed at preventing and managing these conditions.⁹ In this study we tried to explore the gaps in the NCD prevention among Community Health Officers.

Knowledge Regarding Non communicable diseases

In the study by Ji, C., Schuster, T., Martins, J.S. *et al.*¹¹ in Brazil, the mean overall knowledge score was 62% which is similar to our study findings (59.4%). In another study most participants had knowledge that NCDs are not transmissible and are common in Uganda but had limited knowledge of Hypertension and Diabetes.¹² In a similar study among CHWs, the mean Knowledge score of diabetes and hypertension was reported to be poor, being one-third of the expected score.¹³ Suggesting that there is a consistent trend of suboptimal knowledge about NCDs and their screening among healthcare providers across different regions.

Regular training at two-month intervals showed a significant association with improved knowledge scores (table 2). According to Singh & Sachs, the absence of refresher training can lead to a rapid loss of knowledge and capability to perform screening procedures¹⁴. In Nepal, a study by Curtale et al. revealed that providing Community Health Workers (CHWs) with three days of additional training annually resulted in an improvement in the quality of services provided¹⁵. In another study, that involved medical partnership through supervision and training of CHWs, there was improved ability of CHWs to assess cardiovascular risk in their communities.¹² In the systematic review by M. Abdell-all et al., the studies showed improved knowledge levels after training¹⁶. Therefore, it is essential to implement regular training programs to improve the knowledge and effectiveness of CHOs in preventing and managing NCDs in the community. Furthermore, ongoing training programs can bridge the knowledge gap among CHOs, ensuring they are well-equipped with the latest information and skills to address the challenges posed by NCDs effectively.

CHOs aged 30 years or older demonstrated a higher percentage in the High knowledge category compared to those under 30 years (Table 2). This significant association highlights that experience is pivotal in enhancing their knowledge levels towards NCDs. More experienced CHOs, particularly those aged 30 years or older, are more likely to possess a higher level of knowledge. Therefore, it is essential to value the experience of CHOs in NCD management and incorporate it into training programs.

Attitude towards Non communicable diseases

The attitude of CHOs was generally positive towards the increasing trend of NCDs in India. More than 90% of them believed that screening for cancers can help in early diagnosis, and modifying lifestyle can help reduce the risk of developing an NCD. In the study by M. Yenit et al., in Ethiopia around half of the of Health Extension Workers (HEWs) had a positive attitude towards promotion of healthy lifestyle in the community¹⁷. This variation may be attributed to regional differences leading to influence on perceptions and attitudes towards NCDs. There may also be variation in the roles and training of CHOs and HEWs. In a study in Uganda, nearly 90% recognized that the prevalence of cardiovascular diseases (CVDs) in their country is on rise¹². This divergence in attitudes in our study towards CVDs (Figure 2) might stem from various reasons. This variation could be due to successful public health interventions targeting cardiovascular health, such as anti-smoking campaigns, dietary guidelines, and increased awareness about the importance of physical activity. However, this finding may also suggest a need for further education and awareness about the ongoing prevalence and risks of CVDs in the study population.

Practices Towards Preventing Non Communicable Diseases

CHOs were actively involved in counselling for dietary and lifestyle modification, which is an essential aspect of preventing NCDs. Screening for hypertension is also mostly conducted at regular intervals. However, screening for diabetes mellitus and common cancers is rarely done at regular intervals. The irregularities observed

in the provision of healthcare services can have various underlying reasons, including resource restraints, lack of knowledge and absence of female staff. Moreover, in our study as majority of CHOs were male, they faced challenges to screen for breast and cervical cancer due to gender-based socio-cultural barriers. In a similar study, Community Health Workers said that they provide crucial advice on diet, physical activity, and health education to prevent NCDs but face limitations in diagnosing conditions other than hypertension due to inadequate resources and training like lack of functional glucometers and necessary supplies for testing blood sugar¹⁸. These challenges may affect the implementation of preventive practices.

Limitations

There were some limitations in the study. Firstly, convenience sampling used in this study may have introduced selection bias, as only those CHOs who were more interested or confident in their knowledge might have participated, potentially leading to an overestimation of the knowledge, attitude, and practices. Secondly, the data collection method, utilizing a self-administered questionnaire distributed through Google form, is prone to self-reporting bias, as participants might have provided socially desirable responses or overestimated their knowledge and practices. Thirdly, this study is conducted solely in the Agra district, which might limit the generalizability of the results in different regions.

CONCLUSION

Relevance to Community Medicine: CHOs play a critical role in the realm of community medicine. Despite their moderate to low level of knowledge on NCDs and screening protocols, CHOs exhibit a commendable positive attitude towards the rapid rise in the NCD burden. **Implications for Clinical practice:** Strengthening the training programs and addressing the resource constraints are crucial steps to enhance the effectiveness of CHOs in prevention and management of NCDs in any community. Developing mentorship programs where experience health professional may provide guidance and support to CHOs and creating peer support groups for CHOs to share knowledge, strategies and emotional support may help to upgrade their knowledge and skills.

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