Challenges Faced by Community Health Officers in Delivering Comprehensive Primary Health Care at Ayushman Arogya Mandir in a Rural Area of West Bengal: A Cross-Sectional Study

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Abstract:

Community Health Officers (CHOs), play pivotal role in delivering Comprehensive Primary Health Care (CPHC) at Ayushman Arogya Mandir (AAM)are facing several workplace challenges which may hinder their effective functioning and influence service delivery outcomes. **Objectives:** 1.To find-out challenges faced by CHOs delivering CPHC 2.to assess primary stressor and key areas of improvement of services as reported by them. **Method:** Cross-sectional study was conducted among 152 CHOs working at sub-centre level AAMs of Howrah Sadar subdivision, West Bengal by complete enumeration method. Data were collected by pretested, semi-structured self-administered questionnaire. Descriptive statistics were used and for analytical part Chi-square test and logistic-regression performed. **Results:** Among the study participants, 39.5% had residence >10km from workplace, 61.2% reported non-availability of water at working place, 38.2% reported poor sanitation, 44.7% reported net connectivity problem and 30.3% reported scarcity of essential medicines at their AAMs. Around 84% felt that improvement in infrastructure, 72% perceived increased manpower would lead to improvement of services. Primary stressor was reported to be related to health care service delivery by 71%. Primary stressor significantly associated with age group ($p<0.0001$), education ($p=0.003$) and residential distance ($p=0.02$) and age group was significant predictor ($p=0.002$) of primary stressor. **Conclusion:** Inadequate infrastructures and lack of logistic supports were major challenges faced by CHOs on delivering health services. Increasing manpower and infrastructure development was to be helpful for improving healthcare services according to CHOs. Work related stress of CHOs was significantly associated with age, healthcare service delivery, educational qualification, and distance from their residence.

Keywords: Ayushman Arogya Mandir, Community Health Officer, Job Challenges, Primary Health Care, Rural Health

Introduction:

Community Health Officers (CHOs), also known as Mid-Level Health Providers (MLHPs), are non-physician healthcare providers trained to deliver a wide range of essential primary healthcare services at the community level. They are expected to lead the primary care team at Sub-Centre Ayushman Arogya Mandir, provide clinical management and basic ambulatory care,

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ensure continuity of care, and act as an important coordination link between the community and the health system.[1] By strengthening frontline health services, CHOs play a crucial role in improving access, quality, and coverage of primary healthcare, particularly in rural and underserved settings.

The Government of India launched the Ayushman Bharat programme in February 2018 as a flagship initiative to strengthen primary healthcare delivery across the country. A key component of this initiative is the establishment of Ayushman Arogya Mandir by transforming existing Sub-Health Centres and Primary Health Centres to provide Comprehensive Primary Health Care closer to the community, with the guiding principle that "time to care" should not exceed 30 minutes.[2] These centres aim to expand the scope of services beyond maternal and child health and communicable disease control to include prevention, screening, and management of non-communicable diseases, mental health services, ophthalmology, ENT, oral health, geriatric and palliative care, trauma care, along with health promotion and wellness activities.[3]

To operationalise this expanded service delivery model, CHOs have been positioned at Ayushman Arogya Mandir and provided induction and refresher training to deliver both public health and selected clinical services.[4] National assessments of Ayushman Arogya Mandir have demonstrated that the deployment of CHOs has strengthened service availability and readiness at the primary care level, thereby improving access to comprehensive health services.[5] However, studies have also highlighted that the effectiveness of CHOs is closely linked to the availability of adequate infrastructure, logistics, and workforce support at the facility level.[6]

Understanding the nature of these challenges is therefore essential for strengthening the primary healthcare system and achieving universal health coverage goals. Although several studies have examined the functioning of Ayushman Arogya Mandir in different states of India, evidence from rural areas of West Bengal remains limited. Hence, the present study was conducted with objectives to find-out the challenges faced by Community Health Officers working at rural Ayushman Arogya Mandirs in delivering Comprehensive health care & to assess the primary stressor and the key areas of improvement of services as reported by them.

Methods:

A cross-sectional observational study was conducted among Community Health Officers working at Sub Centre level Ayushman Arogya Mandir in five blocks namely BallyJagacha, Domjur, Panchla, Sankrail, and Jagatballavpur under Howrah Sadar Subdivision of West Bengal from 1st August 2025 to 30th September 2025 by complete enumeration method. Howrah Sadar Subdivision comprised 5 blocks and among 5 blocks Bally Jagacha & Domjur are the Rural Field Practice areas of Calcutta National Medical College. Conveniently Howrah Sadar Sub Division was selected.

Out of 160 CHOs 152 gave informed consent for participation as study subjects and after getting ethical permission from Institutional Ethics Committee & permission from appropriate authorities, data were collected by pretested semi-structured self-administered questionnaires containing socio-demographic profile, availability of health facility resources and medical equipment, logistic support, training, self-reported of job satisfaction, work related stressor & areas of improvement, maintaining anonymity and confidentiality of the study participants. The questionnaire was pretested among a small group of CHOs working outside the study area, and necessary modifications were undertaken to improve clarity and relevance before final data collection. Data compilation and analysis were done by IBM SPSS version 23. For descriptive statistics presented by appropriate tables & graphs and inferential statistics ie association between socio-demographic profiles and self-reported primary stressor assessed by chi square test and also logistic regression carried out for which socio-demographic factors are significant influencers taking consideration p value <0.05 as statistically significant.

Ethical approval was obtained from Institutional Ethics Committee of Calcutta National Medical College-EC-CNMC/2025/642 dated 12.07.2025.

Operational definitions

Community Health Officer (CHO): Community Health Officers, also known as Mid-Level Health Providers, are non-physician healthcare providers trained to deliver a wide range of essential primary healthcare services and are responsible for leading the primary care team at Sub-Centre Ayushman Arogya Mandir.[7]

Ayushman Arogya Mandir Ayushman Arogya Mandir are upgraded Sub-Health Centres or Primary Health Centres established under the Ayushman Bharat programme to provide Comprehensive Primary Health Care, including promotive, preventive, curative, rehabilitative, and palliative services.[8]

Primary Stressor-Predominant factors which CHOs were felt making hindrance or overburdened in day to day comprehensive health care delivery services provided by them at Ayushman Arogya Mandir. Here factors are healthcare delivery related i.e., infrastructure inadequacy, shortage or deficiency of logistic support, overburden of workload, mobility support and administrative related stress are time bound target demands, non-availability of services related benefits specially leave & support from higher authority in crisis period .

Results:

A total of 152 Community Health Officers (CHOs) working at Ayushman Arogya Mandir were included in the study.

Majority of the CHOs (59.9%) belonged to the 20-35 years age group, while 40.1% were aged between 35-50 years. Females constituted 88.2% of the study population. About professional experience, most of the participants (88.2%) had 1-3 years of experience as CHOs. (Table 1)

Considering total health service delivery experience, 62.5% had 1-3 years of experience, followed by 21.1% with ≥7 years of experience. In terms of educational qualification, 69.7% of CHOs were

GNM-qualified, whereas 30.3% had completed B.Sc. Nursing. Majority of the participants (60.5%) resided within 10 km of their workplace. (Table 1)

The availability of logistic support at Ayushman Arogya Mandir is illustrated in Table 2. Continuous availability of water supply was found to be not available in many centres (61.2%). Internet connectivity (44.7%) and sanitation facilities (38.2%) were also reported to be inconsistent. Electricity supply (35.6%) and signage facilities (44.7%) were also not uniformly available across all centres. Laptops, essential medicines and medical instruments showed variable availability, indicating major challenges faced by CHOs in delivering Comprehensive Healthcare services. (Table 2).

Majority of CHOs (71%) reported that their primary stressor was due to healthcare delivery related while others (21%) said primary stressors was Administrative type.(Figure 1).

Table 1: Study participants according to their sociodemographic profile (N= 152)

Sociodemographic variables	Category	Frequency (%)
Age group (years)	20-35	91 (59.9)
	35-50	61 (40.1)
Gender	Male	18 (11.8)
	Female	134 (88.2)
Educational qualification	GNM	106 (69.7)
	B.Sc. Nursing	46 (30.3)
Years of experience as CHO	1-3	134 (88.2)
	4-6	18 (11.8)
Total healthcare experience (years)	1-3	95 (62.5)
	4-6	25 (16.4)
	≥7	32 (21.1)
Distance from residence to workplace (km)	<10	92 (60.5)
	≥10	60 (39.5)

Table 2 : Availability of Logistic support with CHO at Ayushman Arogya Mandir (N=152)

Logistic support	Availability of Logistics support			
	Always Frequency (%)	Most of the time Frequency (%)	Rarely Frequency (%)	Never Frequency (%)
Medical Equipment	90 (59.2)	39 (25.7)	22 (14.5)	1 (0.6)
Essential Medicine	51 (33.6)	55 (36.3)	46 (30.1)	-
Net Connectivity	68 (44.7)	16 (10.5)	31 (20.4)	37 (24.4)
Laptop	98 (64.5)	13 (8.6)	1 (0.6)	20 (26.3)
Sanitation	64 (42.1)	30 (19.7)	27 (17.8)	31 (20.4)
Signage facility	84 (55.3)	-	23 (15.1)	45 (29.6)
Electric supply	61 (40.1)	37 (24.3)	27 (17.8)	27 (17.8)
Water supply	50 (32.9)	3 (2)	6 (3.9)	93 (61.2)

Figure 1: Primary stressor as reported by study participants (N=152)

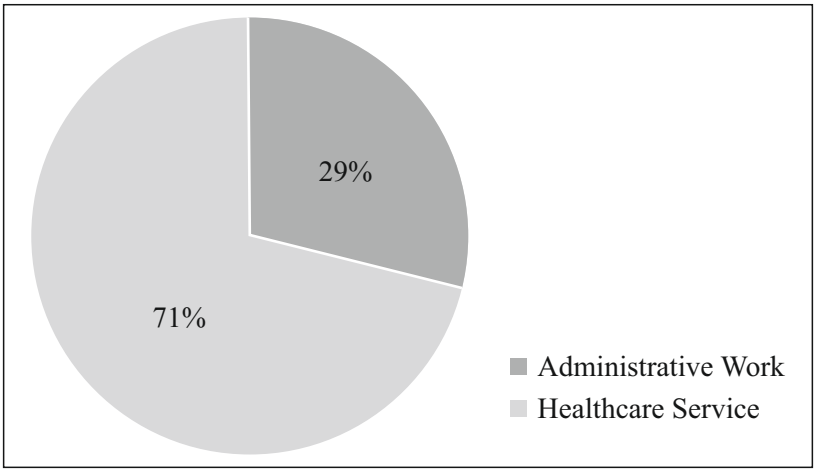


Table 3: Association between socio-demographic variables and primary stressor among Community Health Officers (N = 152)

Sociodemographic variable	Primary stressor		χ^2 value	p value
	Administrative work n (%)	Healthcare service n (%)		
Age group (Years)				
20-35	13 (14.3)	78 (85.7)	21.95	<0.001
35-50	31 (37.7)	30 (62.3)		
Educational qualification				
B.Sc. Nursing	21 (45.6)	25 (54.4)	8.95	0.003
GNM	23 (21.7)	83 (78.3)		
Distance from residence to workplace (Km)				
<10	33 (35.9)	59 (64.1)	5.43	0.02
≥10	11 (18.3)	49 (81.7)		
Gender				
Male	2 (11.1)	16 (88.9)	3.16	0.076
Female	42 (31.3)	92 (68.7)		
Years of experience as CHO (Years)				
1-3	37 (27.6)	97 (72.4)	0.98	0.322
4-6	7 (38.9)	11 (61.1)		

The association between selected socio-demographic variables and the primary stressor among CHOs was presented in Table 3**.** A statistically significant association was observed between age group and primary stressor, with younger CHOs reporting higher healthcare servicerelated stress (p =<0.001).

Educational qualification also showed a statistically significant association (p = 0.003), with GNM-qualified CHOs reporting higher levels of healthcare service related stress compared to B.Sc. Nursing graduates. Distance from residence to workplace was significantly associated (p-0.03) with stressor type, with CHOs residing within 10 km more frequently reporting healthcare service related stress. Gender and years of experience as a CHO did not show a statistically significant association with primary stressor. (Table 3)

Logistic regression showed younger age is significant (p=0.0019) predictor of work related stress in relation to older age group . (Table 4)

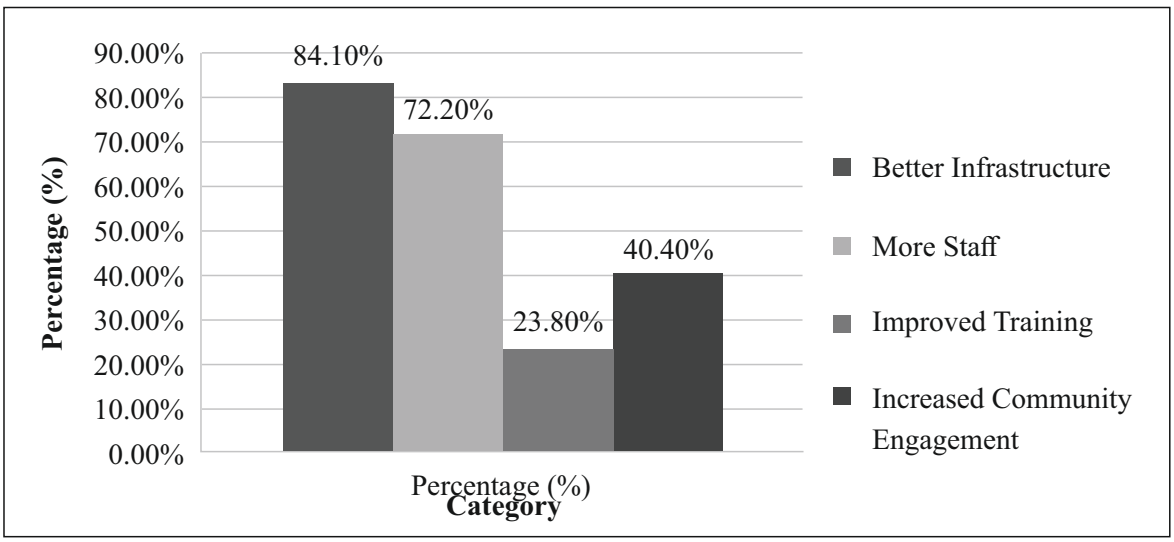
The availability of medical equipment at Ayushman Arogya Mandir was assessed. Most centres had routine examination instruments such as digital thermometers, blood pressure monitors, stethoscopes, weighing machines, height measurement scales and glucometers**.** However, diagnostic tools such as pulse oximeters (15.1%), hemoglobinometers (15.1%) and urine analysis strips (33.6%) were less consistently available, highlighting deficiencies in diagnostic capacity at the primary care level.

The study participants reported areas of requiring improvement at Ayushman Arogya Mandir are shown in Figure 2. Most of the CHOs (84.1%**)** felt that better infrastructure was the most important area requiring improvement. This was followed by the need for more staff, as reported by 72.2% of the participants. Further, 40.4% of CHOs emphasized the need for increased community engagement, while 23.8% felt that improved training was necessary for better service delivery at Ayushman Arogya Mandir.

Table 4: Logistic regression of primary stressor among Community Health Officers with sociodemographic variables (N = 152)

Sociodemographic profile	p value	AOR(95% CI)
Age (Ref 20-35 yrs)	0.0019	11.337 (2.700 - 58.860)
Gender (Ref. Male)	0.213	0.225 (0.055 - 2.238)
Education (Ref.- Bsc Nursing)	0.057	0.327 (0.112 - 1.016)
Distance of workplace from residence (Ref.-≤10km)	0.619	0.901 (0.321 - 2.066)

Figure 2 : Key areas of improvement as reported by study subjects (N-152)*



*multiple response.

Discussion:

In the present study, 88.2% of CHOs are female, and the majority (59.9%) fall within the 2035 age group. These findings align closely with Thakuria et al[9], who studied CHOs in Sonitpur, Assam, reporting that 85% of their respondents were female and 70% were aged between 20 and 30 years and same demographic profile is consistent with findings from Sahoo S. et al[10], who similarly reported a predominantly female CHO workforce in eastern India, with most participants below 40 years of age.

In the present study the major challenges were deficiencies in basic infrastructureparticularly uninterrupted water supply, adequate sanitation facilities, and reliable internet connectivitywere identified as major operational challenges at Ayushman Arogya Mandir. Comparable observations were reported by Verma R. et al[11], who noted that although electricity availability was generally satisfactory, inconsistencies in water supply and internet services.

With respect to medical equipment, routine examination instruments were largely available across Ayushman Arogya Mandirs; however, in the present study it was found several centres lacked essential diagnostic tools such as pulse oximeters, hemoglobinometers, and urine analysis strips and this might be the significant limitation to provide the services the centres made for. Similar findings were documented by Singh A. et al.[12], who reported adequate availability of basic instruments but insufficient diagnostic capacity at primary healthcare facilities.

In the current study it was found that the CHOs felt strengthening of infrastructure and recruitment of adequate staff as the most critical areas requiring improvement for expected level of comprehensive health care delivery. This finding aligns with the study by Nair K.R. et al.[13], which identified shortages of human resources and poor infrastructure.

From the current study it was found that age emerged as a significant independent determinant of healthcare service related primary stress. Multivariate logistic regression analysis demonstrated that younger CHOs had significantly affected by service-related stress compared to their older counterparts ($p = 0.0019$). This strong association underscores age as a key predictor of occupational stress among CHOs. This may be due to limited professional experience, higher performance expectations, and challenges in adapting to multifaceted service delivery roles. Similar observations were reported by Rao S. et al[14], who found that younger healthcare workers experienced higher work-related stress.

Furthermore, CHOs with a General Nursing and Midwifery qualification reported higher levels of healthcare service related stress than those with a B.Sc. Nursing qualification possibly due to differences in training exposure, clinical preparedness, and confidence in handling expanded responsibilities. This finding is consistent with Patil A. et al[15], who reported greater stress among nursing personnel with lower professional qualifications.

Distance between residence and workplace was also significantly associated with stress in the present study, with CHOs residing closer to their workplace reporting higher stress levels. This contrasts with findings by Kumar M. et al[16], who reported increased stress among healthcare workers with longer commuting distances. The discrepancy may be explained by contextual factors such as increased service expectations, greater community accessibility, and reduced work life boundaries for CHOs residing closer to the served population.

In contrast, gender and duration of service as a CHO did not show a significant association with occupational stress. Similar findings were reported by Dutta S. et al[17], who observed no significant relationship between gender, years of experience, and stress among frontline health workers.

Limitations of the study:

The present study was conducted in a limited geographic area covering selected blocks of Howrah Sadar subdivision and hence the findings may not be generalized to all Community Health Officers across the state or country. The study relied on self-reported responses, which may be subject to reporting and social desirability bias. Additionally, the cross-sectional nature

of the study limits the ability to establish causal relationships between workplace factors and perceived stressors. The statistical outcomes could have been precise if sample was size large.

Conclusion:

It can be concluded from the present study that CHOs felt that inadequate infrastructure, lack of uninterrupted water supply and internet connectivity, and non-availability of essential medical equipment were major challenges in comprehensive health care delivery at Ayushman Arogya Mandir. Work related stress of CHOs was significantly associated with age, educational qualification, and distance from their residence.

CHOs perceived that health care delivery services might be at par by infrastructure improvement adequate manpower recruitment with regular basis reorientation training. Addressing these challenges is critical for strengthening primary healthcare delivery and ensuring the successful implementation of the Ayushman Bharat Health and Wellness Centre initiative.

Recommendations:

Based on the findings of the study it is recommended at least basic infrastructure ie water supply, sanitation facility, net connectivity should be available in all Ayushman Arogya Mandirs for smooth running the services. Ensuring continuous availability of essential medical equipment and diagnostic tools should be prioritized to improve quality of care. Supportive supervision, regular induction and refresher training programmes should be conducted to enhance clinical and

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Declaration

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Conflict of Interest: Nil

Use of AI: Nil

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