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Original Research Article

Adherence to Indian public health standards 2022 standards: a cross-sectional study on infrastructure of health and wellness centres in Amritsar district of Punjab

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ABSTRACT

Background: After independence since 1952 basic healthcare services are primarily being delivered through primary health centres (PHCs). Recently, the government has expanded services with health and wellness centres (HWCs) to offer comprehensive primary care. Indian public health standards (IPHS) has formed the basis of their updation since 2007 with latest coming up in 2022. It is a general belief that infrastructure is lacking but no studies have been conducted to assess them in the border district of state of Punjab.
Methods: An observational cross-sectional study was conducted among 8 urban PHCs (UPHCs), 17 rural PHCs (R-PHC) and 28 sub health centres (SHCs) of district Amritsar UPHCs selected by Simple random sampling whereas RPHCs and SHCs selected by two stages stratified random sampling) where available infrastructure was assessed using a checklist developed on basis of IPHS 2022. Data was collected by observation and interview with medical officer and community health officer. Based on the checklist, overall scores were calculated where presence/absence of infrastructure were scored as 1/0. The PHCs were then classified into very good (>80%), good (60-80%), average (40-60%), poor (<40%).
Results: Basic utilities like 24-hour electricity and water supply were available in 100% of R-PHCs, 89% of SHCs, and 100% of UPHCs. Fire safety measures were present in 50% of UPHCs, 35% of R-PHCs, and none of the SHCs. Residential facilities were available in 35% of R-PHCs, 4% of SHCs, and none of the UPHCs. Regarding clinical infrastructure, 70% of R-PHCs (24×7 and non 24×7) had inpatient wards, but none were equipped with minor OTs. In comparison, 62% of UPHCs (24×7 and non 24×7) had inpatient wards, and only 25% had minor OTs. Among SHCs, 89% had consultation. Overall, 83% of R-PHCs and 75% of UPHCs were graded very good or good, while 82% of SHCs were rated average or poor.
Conclusions: While basic amenities were widely available, significant gaps in clinical and support infrastructure were identified, particularly in SHCs, which lack fire safety measures, functional residential quarters, and dedicated health and wellness areas. These deficiencies underscore the need for targeted investments to enhance infrastructure across all HWC levels.

Keywords: IPHS, R-PHC, UPHC, SHC, Infrastructure

INTRODUCTION

Health has long been recognized as a fundamental human right and an indispensable pillar of a nation's socioeconomic development.[1] Since India's independence, PHCs have served as the foundation of the country's healthcare system, providing essential services to rural and underserved populations. Building on this legacy, the government of India has expanded its vision for primary healthcare by establishing HWCs.[2-4]

These centres aim to deliver a comprehensive range of services, including preventive, promotive, curative, rehabilitative, and palliative care, to meet the diverse healthcare needs of communities at the grassroots level.[5,6] Currently, primary healthcare services in India are delivered through SHC and R-PHC in rural areas and UPHC in urban areas also referred as HWCs or Ayushman Arogya mandirs.[7]

HWCs are envisioned as the first point of contact for individuals seeking primary healthcare services, making their effective functioning crucial for the success of national health programs. However, despite significant efforts, challenges persist in ensuring that HWCs are equipped with adequate infrastructure and resources to provide services that meet acceptable standards.

To address these challenges, the IPHS, most recently updated in 2022, serve as a critical framework for standardizing and enhancing the quality of primary healthcare delivery. These standards provide clear benchmarks for infrastructure, human resources, equipment, and service protocols across all healthcare facilities, including HWCs. Despite the IPHS's importance, there is a paucity of empirical research assessing the compliance of HWCs with these standards, particularly in Punjab. [5,6]

This study seeks to bridge this gap by evaluating the infrastructure of HWCs in the Amritsar district of Punjab against the 2022 IPHS standards. Through a detailed assessment of existing facilities, the research aims to identify gaps, highlight areas for improvement, and offer evidence-based insights to inform policy decisions and strengthen healthcare delivery at the grassroots level.

METHODS

The cross-sectional study was conducted in department of community medicine, government medical college, Amritsar from 1st January 2023 -31st December 2023.

Sample size and sampling technique

The list of existing R-PHCs, UPHCs and SHCs upgraded to HWCs was obtained from the civil surgeon office of district Amritsar. The rural area of Amritsar is divided into seven health blocks providing a natural stratification for the sampling process. This existing structure was utilized as the basis for the sampling, effectively stratifying the district into seven distinct geographical units. Within each health block, a complete list of all R-PHCs was compiled. This line listing provided a comprehensive overview of R-PHCs in each block. From these lists, R-PHCs were then randomly selected from each health block allowing for both geographical representation across the district and random selection within each block. Initially half of the upgraded R-PHCs of Amritsar (14 out of 28) and UPHCs (8 out of 16) were selected by simple random sampling (SRS) technique (lottery method) for inclusion in the study. However, during the course of the study, it was observed that not all selected R-PHCs met the criterion of having at least two associated SHCs. To address this limitation and ensure a comprehensive evaluation, an additional 3 PHCs were selected randomly from the 3 blocks and included in the study. As far as R-PHCs were concerned, 2 SHCs (upgraded to HWCs) from each R-PHC were randomly selected for assessment of available facilities according IPHS 2022. Therefore, a total of 17 R-PHCs and 8 UPHCs along with 28 SHCs formulated the sample size for the study.

Data collection tool

A predesigned semi-structured proforma (based on IPHS 2022) in form of a checklist was used for data collection. A separate proforma was prepared for SHC and PHC (R-PHC, UPHC).

Methodology

Prior to the commencement of the study, after obtaining approval from the institutional ethical committee, permission from the civil surgeon of Amritsar district was secured along with the list of existing SHCs and PHCs (R-PHC and UPHC) in the district. The Simple random sampling technique was applied to the list for selection of 8 UPHCs whereas 17 RPHCs and 28 SHCs were selected by two stage stratified random sampling. All the selected health facilities were visited after taking prior appointment telephonically or by personal visit to medical officer/community health officer (MO/CHO) in-charge of the respective health facilities. During each visit MO/CHO in-charge was met and the aims and objectives of the study were explained. Following which for recording the information on available infrastructure an observatory round of the HWC was done supplemented by one to one interview with MO/CHO In-charge. All the information was recorded on pre-designed checklist.

Statistical analysis

Data was compiled using Microsoft excel. Based on the checklist, for each type of human resource, the proportion was calculated by dividing the actual number present by the recommended number. This allowed for the determination of excess or deficiency. Overall scores were calculated by dividing the total available infrastructure of each HWC by the recommended infrastructure as per IPHS 2022. These scores were then converted to proportions. Using these proportions, HWCs (SHCs, PHCs, and UPHCs) were classified into categories such as very good (>80%), good (60-80%), average (40-60%), and poor (<40%).

RESULTS

Distribution of HWCs, which includes R-PHCs, UPHCs, and SHCs, as per the recommended population coverage.

59% (10) of the R-PHCs catered to a population of ≥30,000. The population coverage for R-PHCs ranged from 6,000 to 233,342. Among these, two R-PHCs with the highest coverage were upgraded to block-level R-PHCs, serving populations of 190,000 and 233,342 respectively. As far as UPHCs were concerned, 5 (63%) catered to a population of ≥50,000. However, 96% of SHCs were found to be catering to a population of ≥5,00, where 1 SHC was catering to a population as high as 16,033 (Table 1).

General infrastructure

The available general infrastructure was compared with the recommended infrastructure as per IPHS 2022, where 9 components have been highlighted. All the UPHCs and R-PHCs had 24 hour electric supply and required infrastructure for bio medical waste disposal and illumination. Further parking facility, water supply and screening and holding area was available in all the R-PHCs. As far as fire safety was concerned only 50 % of UPHCs, 35% of R-PHCs and none of the SHCs had that facility. Whereas for SHCs, 93% each had adequate infrastructure for biomedical waste disposal and illumination. 89% each of SHCs had 24 hour electric supply, parking facility and water supply (Table 2).

Clinical infrastructure in non 24×7 HWCs

According to IPHS 2022 there are 16 components recommended for clinical infrastructure for UPHC and R-PHC whereas 10 components are required for SHC.

Out of the 16 components all the R-PHCs had 4 components (waiting area, consultation room, clinical/central laboratory, immunization room and registration area) whereas none had counselling room, minor OT and health and wellness area. Among the UPHCs, 80% had waiting area, consultation room and clinical/central laboratory whereas 6 components (communication systems, counselling room, oxygen support, minor OT, health and wellness area, ASHA room) were not present in any UPHC. As far as SHCs were concerned all had a consultation room whereas none had a health and wellness area. Only 14% and 21%, of the SHCs had oxygen support and clinical laboratory, respectively (Table 3).

Clinical infrastructure in 24×7 HWCs

Out of the required 17 components all the 24×7 UPHCs had 10 components i.e., waiting area, consultation room, clinical/central laboratory, immunization room, registration area, drug dispensing counter, store, inpatient ward/day care room, labour room complex and oxygen support. As far as R-PHCs were concerned only 5 components i.e., waiting area, consultation room, clinical/Central Laboratory, immunization room and labour room complex were available at all R-PHCs. Counselling room, health and wellness area and ASHA room were not available at any of the R-PHCs or UPHCs (Table 4).

Infrastructure for support services

The available support services infrastructure was compared with the recommended infrastructure as per IPHS 2022, where only two components have been highlighted. 94% of R-PHCs had washroom facilities, whereas for UPHCs and SHCs, the figures stood at 88% and 89%, respectively. None of the UPHCs had residential quarters, while 35% of R-PHCs and only 1 (4%) of SHCs had such quarters, albeit in an unusable condition. In addition to these two, a decontamination facility was essential in all SHCs, but none of them had one available (Table 5).

Overall grading of HWCs

The proportions were calculated by dividing the total present infrastructural components of each HWC by the recommended infrastructural components as per IPHS 2022 for 24×7 HWC (UPHC, R-PHC), non 24×7 HWC (UPHC, R-PHC) and SHC where the denominator for each one was 28, 27 and 22 respectively. Among the UPHCs, 75% were rated very good or good compared to R-PHCs where 83% were rated very good or good. SHCs showed the lowest ratings, with none being very good, 18% good, 82% average or poor. Overall, 47% were rated as very good or good, while 53% were rated as average or poor (Table 6).

Table 1: Distribution of HWCs (R-PHCs, UPHCs and SHCs) according to population catered (n=53).

Population catered	N (%)	Range
R-PHC (n=17)		
<30000	7 (41)	6000-233342
≥30000	10 (59)	
UPHC (n=8)		
<50000	3 (37)	22000-65645
≥50000	5 (63)	
SHC (n=28)		
<5000	1 (4)	4927-16033
≥5000	27 (96)	

Table 2: Assessment of HWCs (UPHCs, R-PHCs and SHCs) according to the availability of recommended general infrastructure as per IPHS 2022 (n=53).

General infrastructure	UPHC (n=8) (%)	R-PHC (n=17) (%)	SHC (n=28) (%)
Electric supply	8 (100)	17 (100)	25 (89)
Bio-medical waste (BMW) disposal	8 (100)	17 (100)	26 (93)

Continued.

General infrastructure	UPHC (n=8) (%)	R-PHC (n=17) (%)	SHC (n=28) (%)
Illumination	8 (100)	17 (100)	26 (93)
Parking	6 (75)	17 (100)	25 (89)
Water supply	6 (75)	17 (100)	25 (89)
Screening and holding area	5 (63)	17 (100)	15 (54)
Wayfinding/signage	6 (75)	15 (88)	11 (39)
Disabled and elderly friendly access	6 (75)	10 (59)	2 (7)
Fire safety	4 (50)	6 (35)	0 (0)

Table 3: Assessment of non 24×7 HWCs (UPHCs, R-PHCs and SHCs) according to the availability of recommended clinical infrastructure as per IPHS 2022 (n=41).

Clinical infrastructure	UPHC (n=5) (%)	R-PHC (n=8) (%)	SHC (n=28) (%)
Waiting area	4 (80)	8 (100)	21 (75)
Consultation room	4 (80)	8 (100)	28 (100)
Clinical/central laboratory	4 (80)	8 (100)	6 (21)
Registration	3 (60)	8 (100)	13 (46)
Immunization room	4 (80)	7 (88)	NA
Drug dispensing counter	3 (60)	7 (88)	NA
Store	3 (60)	5 (63)	9 (32)
Dressing room/ injection room/ emergency	2 (40)	3 (60)	NA
Oxygen support	0 (0)	3 (60)	4 (14)
In-patient ward/day care room	2 (40)	4 (50)	8 (29)
communication systems	0 (0)	4 (50)	11 (39)
Record keeping	1 (20)	1 (13)	10 (36)
Minor OT	0 (0)	0 (0)	NA
Counselling room	0 (0)	0 (0)	NA
Health and wellness area	0 (0)	0 (0)	0 (0)
ASHA room	0 (0)	1 (13)	NA

Table 4: Assessment of 24×7 HWC-PHCs (UPHCs and R-PHCs) according to the availability of recommended clinical infrastructure as per IPHS 2022 (n=12).

Clinical infrastructure	UPHC (n=3) (%)	R-PHC (n=9) (%)
Waiting area	3 (100)	9 (100)
Consultation room	3 (100)	9 (100)
Clinical/central laboratory	3 (100)	9 (100)
Immunization room	3 (100)	9 (100)
Registration	3 (100)	8 (89)
Drug dispensing counter	3 (100)	4 (45)
Store	3 (100)	6 (67)
In-patient ward/day care room	3 (100)	8 (89)
Labour room complex	3 (100)	9 (100)
Oxygen support	3 (100)	6 (67)
Dressing room/injection room/emergency	2 (67)	4 (45)
Record keeping	2 (67)	2 (22)
Minor OT	2 (67)	0 (0)
Communication systems	1 (33)	5 (56)
Counselling room	0 (0)	0 (0)
Health and wellness area	0 (0)	0 (0)
ASHA room	0 (0)	0 (0)

Table 5: Assessment of HWCs (UPHCs, R-PHCs and SHCs) according to availability of recommended infrastructure for support services as per IPHS 2022 (n=53).

Support services infrastructure	UPHC (n=8) (%)	R-PHC (n=17) (%)	SHC (n=28) (%)
Washrooms	7 (88)	16 (94)	25 (89)
Residential quarters	0 (0)	6 (35)	1 (4)

Table 6: Overall infrastructural grading of HWCs (UPHCs, R-PHCs and SHCs) (n=53).

Grading of HWCs	UPHC (n=8) (%)	R-PHC (n=17) (%)	SHC (n=28) (%)	Total N (%)
Very good (>80%)	2 (25)	3 (18)	0 (0)	5 (9)
Good (60-80%)	4 (50)	11 (65)	5 (18)	20 (38)
Average (40-60%)	0 (0)	2 (12)	15 (53)	17 (32)
Poor (<40%)	2 (25)	1 (5)	8 (29)	11 (21)

DISCUSSION

In the present study, the population covered by each R-PHC showed significant variation, ranging from 6,000 to 233,342. Notably, 59% of the R-PHCs catered to populations exceeding 30,000. In a study conducted in Assam, PHCs catered to populations of 200,000 to 350,000, whereas most PHCs in Karnataka, served populations below the recommended norm of 30,000.[8] A similar study in selected districts of south Kashmir, found that the median population covered under a PHC was 12943 (minimum 9446 and maximum 26184).[9]

The nomenclature of PHC varies from state to state may it be mini PHC/PHC/block PHC. In our study high degree of variation in population coverage by R-PHCs can be attributed to inclusion of PHCs, mini-PHCs, and block PHCs which were recently upgraded to HWCs. Whereas in Assam population size was about 6-12 times more than the defined norm and was even larger than the population covered by a block PHC or CHC, indicating insufficient PHC establishment.

In the present research, UPHCs, 5 out of 8 (63%) served populations greater than 50,000. The median population covered by UPHCs was 52,769, aligning with the norms set by IPHS 2022.

Traditionally, the term sub-centre was commonly used for facilities now known as SHC as per the IPHS 2022. The difference in terminology for these facilities observed in various studies and documents can be attributed to the time frame in which they were conducted or written. Studies and reports referring to time frame before the implementation of IPHS 2022 typically use the term “sub-centre”, while more recent documents used “SHC”.

Punjab's health system presents a unique case, featuring an additional primary health facility between the SC/SHC and PHC. This facility shares the same acronym as SHC but stands for subsidiary health centre operated under Zila Parishad functioning as a part of the broader four-tier health system in Punjab, working in coordination with SC/SHC, PHC and CHC. This unique structure in Punjab's health system adds a layer of complexity when discussing or comparing health facilities across different states in India

In the present study concerning SHCs, 96% were found to be catering to populations exceeding 5,000. The range of population covered by SHCs was 4927-16033 which is similar to a study conducted in SCs of Ambala district, found this variation in a range of 2134-12,148.[10] A similar study in a district of Jammu and Kashmir found the population coverage ranged from 193 to 5,000.[11] In all of these studies, all the SCs were providing services to more than 5,000 people, which is more than the IPHS norms for SCs, indicating a high service delivery burden on the existing SCs.

It was observed in the present study that all R-PHCs had 24-hour electricity supply and water supply. Every 24×7 R-PHC had a labour room complex. However, none of the R-PHCs had a minor OT. These results for R-PHCs align with a study conducted in Bihar, where water and electricity were consistently available in all PHCs, with only one PHC experiencing irregular electricity supply. All PHCs had a functional labour room, though OT was present in all the PHCs. [12]

A waiting room was present in all R-PHCs in our study. An inpatient ward/daycare room was available in 70% of R-PHCs, laboratory was available in 100% R-PHCs. However, only 35% of R-PHCs had residential facilities. This is slightly better than the findings of a study conducted in Shimla district, where a waiting room, beds for patients were present in 50% and laboratory was available in 33% PHCs. Residential accommodation for doctors and other staff was provided by only 16.7% PHCs in that study. [13]

In present study, R-PHCs reported 100% availability of various national health programs, community-based planning and monitoring, administrative and maintenance services, records of vital events and reporting, and monitoring which is better than the study conducted in PHCs of Kashmir, where monitoring of national health programmes and reporting of vital statistics was reported as 83%.[9]

In the present study, 89% of SHCs had 24-hour electric supply, water supply, and consultation rooms, but none had fire safety facilities or a health and wellness area. Similarly, a study conducted in West Bengal found that all SCs had electric supply and dedicated clinic rooms, 78.9% had water supply, but none had dedicated firefighting facilities.[14]

Only 4% of SHCs had residential quarters in our study, though in an unusable condition. In a study conducted in west Bengal, 23.7% of the SCs had residential facility for health staff.[14] Reddy et al conducted a study in Chittoor

district of Andhra Pradesh also reported that 26.4% of the SCs had residential facilities for the staff, though Patil and Shivaswamy, in their study, revealed that three-fourth of the SCs had residential facilities for staff.[15,16]

The differences observed across these studies highlight the regional disparities in healthcare infrastructure across India. Factors contributing to these variations could include differences in state health policies, budget allocations, geographical challenges, and local implementation. The generally better infrastructure and service availability in the current study compared to some others might indicate improvements over time or could reflect better resource allocation in the studied area.

In Punjab HWCs were branded as "Tandurust Punjab Sehat Kendra" in Punjabi to establish a sense of local identity and community ownership.[17] However in 2023, these centres were rebranded as "Aam Aadmi Clinics". The generally better infrastructure in the current study compared to some others might indicate improvements over time or could reflect better resource allocation in the studied area.

In the absence of studies in the area since the framing of the IPHS, our discussion of the results was limited by the minimal data with which we could compare our findings. During the timeframe of present study, HWCs in the area were in the process of rebranding as Aam Aadmi Clinics, and the infrastructural transition was still ongoing. Consequently, the assessment was conducted based on the current condition of the HWCs at that time.

CONCLUSION

While basic amenities like electricity and water supply were present in most facilities, but significant infrastructure deficiencies were noted, particularly in clinical services and support services. R-PHCs had the most favourable ratings, with 83% graded as very good or good, but gaps such as the absence of minor operation theatres and health and wellness areas remained. UPHCs and SHCs also faced similar issues, with lower overall ratings, particularly for fire safety, inpatient wards, and residential facilities. These deficiencies hinder the ability to deliver comprehensive and high-quality services, especially in emergencies.

Recommendations

Upgradation of HWCs having insufficient space and dilapidated building infrastructure, particularly residential facilities to meet Indian Public Health Standards, along with performing regular maintenance to ensure that the facilities remain operational.

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