

ORIGINAL ARTICLE

Rapid Assessment of Health Services in Punjab using a Mixed Method Approach

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Abstract

Introduction: The out-of-pocket expenditure is quite high in Punjab. Hence, a rapid review of health facilities was undertaken to suggest remedial measures. **Methods:** Mixed method research approach was used to identify strengths and weaknesses of the health services in Punjab. All health institutions were included in the assessment from the three purposively sampled districts – one from each of the three regions of Punjab. Tools were developed to collect data from record review, observations, and in-depth interviews. Six building blocks framework proposed by the World Health Organization was used for data collection and analyses. **Results:** In general physical infrastructure, especially the buildings were found to be reasonably constructed at most of the healthcare facilities. However, the maintenance was not regular. The vacancies for general doctors, specialist doctors, nurses, and paramedics were 26%, 38%, 31% and 12% respectively. Supply of drugs was irregular and inadequate. A large proportion (45%) of 'user charges' were spent on purchase of drugs and other consumables. Most registers were found to be updated, and reports were transmitted to higher levels usually on time. However, institutionalized system of monitoring and supervision was lacking. Govt. hospitals were providing in-patient care to about 35.5% of those who were estimated to need hospitalization. State had allocated about Rs. 1200 crores to health (0.46% of GDP), thus, spending only Rs. 433 per capita per year. **Conclusions:** Despite constraints, the government health service is catering to the needs of a large section of the population. Rapid health system assessment at periodic intervals using a mixed method approach can supplement routine monitoring of the health system.

Key Words

Health Service; Evaluation; Mixed Methods; Healthcare; Access

Introduction

Punjab is relatively a well-developed state of India. In terms of Human Development Index it ranks 5th among Indian states. (1) Reasonable funds used to be allocated to develop govt. health services till 1970s. (2) However, since the mid-1980s, growth slowed and the state faced a financial crisis.

Consequently, state allocation of funds to the social sector declined nearly to half. The share of public health, out of the total budgetary expenditure, has plummeted from around 9% during 1980-81 to 4% in 2004-05. (3) The population served per bed in rural areas has increased only marginally from 1276 during the early 1980s to 1555 during 2004-05. (4)

In this scenario, overwhelmingly services are sought from private healthcare practitioners at high cost which pushes many families below the poverty line. According to National Sample Survey conducted in 2004, average out-of-pocket expenditure for hospitalization was highest in Punjab (Rs. 12,132 in rural and Rs. 16,728 in urban areas). Even in government health institutions, average out-of-pocket expenditure was Rs. 270 per clinic consultation and Rs. 7,700 per hospitalization. (5) To increase access to health care and to make health care affordable, government of India initiated National Rural Health Mission in 2005. This mission gave a fresh impetus to public health sector activities in Punjab also as has happened in many other states. However, the rising trend of non-communicable diseases is likely to offset the gains achieved so far. Hence, re-assessment of health service was required to improve access to health care.

A comprehensive assessment of health services, to identify barriers and facilitators, should include both client-side and provider-side factors. The client-side barriers include access, cost, and socio-cultural norms whereas the provider side factors include availability of manpower, drugs and equipment, quality of care, infrastructure, governance etc. Therefore, a rapid review of health facilities was undertaken in Punjab in accordance with the WHO framework for health system monitoring. (6)

Aims & Objectives (*Preferably in points*)

This study was conducted to identify the strengths and weaknesses of the health services in the state of Punjab for suggesting corrective measures.

Material and Methods

Out of the 22 districts of Punjab state, three districts were sampled purposively (Fatehgarh Sahib, Mansa and Tarn Taran) from the three regions, namely Majha, Malwa and Doaba. A list of health facilities was obtained from the district health authorities ([Table 1](#)). It was decided to cover all the community development blocks and all types of health facilities at different levels in the three sampled districts. In each district, one District Hospital (DH), one Sub-divisional Hospital (SDH), two Community Health Centers (CHCs) were chosen randomly, except in Tarn Taran where one CHC was selected due to local logistics constraints. Within each CHC, two Primary Health Centers (PHCs) and within each PHC, two sub-centers were selected randomly from the list of health facilities. A total of 16 health facilities in

Fatehgarh Sahib, 15 health facilities in Mansa and 9 health facilities in Tarn Taran were included in the assessment.

Two teams comprising of community physicians and research scholars visited the selected health facilities. The team interviewed medical officer-in-charge of the health facility, pharmacist, office clerk, Auxiliary Nurse Midwife (ANM) and any other hospital staff wherever available, observed drugs, equipment, cleanliness, storage etc. and examined the records available at each facility. A total of 24 medical officers, 20 pharmacists, 14 office clerks, 24 ANMs and 13 other staff (district NRHM coordinator, lady health visitor, laboratory technicians) were interviewed. Five exit interviews with the OPD patients were also conducted at each of the DHs, SDHs and CHCs to assess patient's satisfaction about the health care received.

Separate interview guides were used to conduct in-depth interviews. Information on client satisfaction and out-of-pocket expenditure, distance to travel to the health facility etc. were collected using interview schedule that was used at the exit. Thematic analysis of in-depth interviews was done using qualitative analysis techniques. Interviews were conducted in the language understood by the respondents e.g. English, Hindi, or Punjabi and these are translated in English. Narratives were recorded in the diary and themes were generated and interpreted. Scoring and ranking methods were used for measuring performance of health facilities using WHO framework of the six building blocks of health system⁶, i.e., service delivery, human resources, information systems, drugs and equipment, financing, governance ([Table 2](#)). A score of five was regarded as 'very good' and a score of one as 'very poor'. The Task Group on Health and Medical Education, Punjab Governance Reform Commission (PGRC), Govt. of Punjab had granted permission for conducting this evaluation.

Results

The data was collected by two teams in four weeks and analysis was completed in two weeks. Following findings were presented to the Punjab Governance Reform Commission according to the six building blocks of the health system.

Physical infrastructure

Most (90%) of the health facilities were easily accessible. Proper signage and health education materials were displayed in local language in 80% of

the health institutions. The building and general infrastructure at most health care facilities was adequate as per the state norms but it needed proper annual maintenance. Residential quarters, however, needed major repairs. A 32 year old doctor from a CHC said *“Yahan rehne ke liye koi suvidha nahin hai, isliye daily up-down karna padta hai. Quarters hain, lekin salon se aise hi pada hai, building bahut purani hai* (There is no residential quarter here, hence, I have to commute from another place; quarters are there but these are not used as the buildings are very old)”.

The number of functional beds in the facilities was less than the prescribed standards. Supply of water and electricity was in place at 95% of the health care facilities. However, at some facilities, frequent power cuts were a major problem. Use of generators was a costly affair due to the high cost of diesel. The DHs in the districts of Mansa and Tarn Taran had to pay for diesel from ‘user charges’.

Human resources

All health facilities had the problem of vacant posts of medical, paramedical and support staff. There was an acute shortage of specialists, in particular, Gynecologists, Pediatricians, Radiologists, and Anesthesiologist. It was not only evident from the records but was also expressed by the staff. One of the pharmacist in a CHC remarked *“Yahan pe koi specialist nahin hai, 2 doctor hain, unki bhi night lagti hai kahin aur. Agle din day off hota hai to OPD kaise hogi* (There is no specialist here, 2 doctors are present, and they go for night duties somewhere else, take off next morning, how can there be OPD?)”. In such situations the pharmacist tries to manage the OPD. Therefore, in some of the CHCs, there is even problem of managing general OPD service due to shortage of doctors, leave aside specialist services.

Nearly 26%, 38%, 31% and 12% of the posts were lying vacant among general doctors, specialist doctors, nurses and paramedics respectively (Table 3). The paramedics included pharmacists, lab technicians, radiographers and operation theatre technician. Around 41% of the posts for Health Worker (Male) were lying vacant; however only 8% of the posts for Female Health Workers were vacant. On an average a doctor provided consultation to 39 patients in the OPDs, a surgeon conducted 6 surgeries, a gynecologist performed one Caesarean Section and nurses were conducting one delivery daily. A laboratory technician performed 74

laboratory tests, and a radiographer clicked 20 x-rays daily (Table 4). There was one doctor for every 11,364 population, one nurse for every 15,938 population and one laboratory technician for every 41,544 population (Table 5).

A separate cadre for General Medical Officers (GDMO) and Specialists does not exist in Punjab. Specialist doctors have to handle emergency and administrative duties as well which is a demotivating factor. Frequent transfers of doctors are a cause for concern in most health facilities. Recruitment and appointment also takes a long time.

Drugs and equipment

Supply of drugs was irregular, and most of the drugs were in short supply. Most (86%) of the health facilities had to buy medicines from the ‘user charges’ or from the *Rogi Kalyan Samiti* funds. Despite this, most patients were required to purchase the medicines from outside, thereby, breeding discontent among clients. Exit interviews revealed that due to lack of medicines in the public health facility, most of the patients had to purchase medicines from outside. A 48 year female patient commented in a DH, *“Sarkari kender mein to dawai kabhi milti nahin hai, bahar se hi lena padta hai* (Medicines are never available in the government health centers, these are to be purchased from outside only)”.

In-depth interviews with the medical officers and the pharmacists revealed that inadequate supply of medicines is the main cause behind poor outpatient attendance.

A forty year old pharmacist in PHC said *“Marij ko agar dawai na mile to woh sarkari hospital mein kyun aye. Isliye woh private mein dikhate hain* (If patient does not get medicine, why should he be coming to government hospital? That is why they consult a private health facility)”.

Due to non-availability of skilled personnel and specialists, x-ray machines, ultrasound units and operation theater equipment were non-functional at sub-divisional and district hospitals in Mansa and Tarn Taran. The Free Emergency Response Service (Ambulance) had made its presence felt contributing to trauma care, maternal and neo-natal services and overall accessibility of healthcare facilities.

Health service utilization

Considering morbidity and hospitalization rates of 13.1% and 7.4% in Punjab⁵, the number of estimated ailments and hospitalizations in the selected districts were calculated. Out of the estimated 86.3 lakh

ailments, only 14.2 lakh (16.4%) were catered by the govt. health facilities. Out of the estimated 187,528 hospitalizations, 66,701 (35.5%) hospitalizations were in the govt. hospitals/health centers. Only 28% of the estimated hospitalizations were looked after by govt. hospitals in Tarn Taran district compared to 44% in Mansa and 40% in Fatehgarh Sahib ([Table 6](#)).

Financing

Rogi Kalyan Samiti funds were utilized for improving health services, e.g., for maintenance of infrastructure, purchase of drugs and surgical materials, purchase of inverter, maintenance of generator etc. Delay or non-availability of funds from State Headquarters hampered routine service delivery. A large proportion (45%) of user charges was spent on drugs and other consumables due to their short supply. Presently Punjab state is spending about Rs. 1200 crores (0.46% of GDP) thereby incurring a per capita expenditure of only Rs. 433.

Health Management and Information System and governance

Most of the registers/records were updated regularly. All reporting formats were being maintained properly and sent to higher institutions on time. However, feedback from the State could not be observed. Monitoring and evaluation was weak since medical officers did not get time to supervise the work of their subordinates and field staff.

As shown in [Table 7](#), overall functioning of the govt. health facilities was satisfactory. However, shortages in supply drugs, laboratory reagents and human resource were the main weaknesses whereas physical infrastructures, the outputs in terms of services delivered, and management information system were relatively better.

Discussion

Health systems that can deliver services equitably and efficiently are critical for achieving universal health care. This has shifted global attention to health systems strengthening. However, it requires a sound monitoring mechanism that enables decision-makers to accurately track the performance. Rapid assessments are potential tools for identifying priority areas for strengthening the health services. In this rapid review, health service was found to be performing at a satisfactory level for meeting the health needs of a sizeable section of population despite several constraints. Regular supply of drugs, reagents, and other consumables in adequate quantity was identified as short term measures to

improve utilization of existing govt. health facilities in Punjab.

Rapid reviews with a quantitative and qualitative component have been used earlier. Common Review Mission of National Rural Health Mission has been conducted for concurrent evaluation. Every state should have an in-built rapid review mechanism which can be repeated at regular frequency for timely identification of problem areas for remedial actions promptly. Our study has used a mixed method approach which utilized routine data (quantitative method), supplemented by field observations, and in-depth-interviews with the key functionaries and clients (qualitative methods) to assess the performance of the health system. Client satisfaction is an important parameter for assessing quality of services. Patient exit interviews are a key component of rapid health system assessments to monitor quality of care for continuous quality improvement. (7)

Human resources are critical to the functioning of health system. India is facing a severe crisis of human resources in health sector. Also there is unequal distribution of human resources with more workforce concentrated in urban areas. A comprehensive human resource policy is needed to achieve universal health care in India. (8) A new recruitment policy has been recently implemented in Punjab. Monthly walk-in interviews are held for specialists and immediate placement is being done. This policy should be carefully monitored to find out whether it has been able to recruit specialists and retain them. The recruitment of medical, paramedical, technical and other support staff also needs to be fast-tracked.

The irregular supply of drugs promotes dissatisfaction among the population. The state government has allocated more funds for drugs this year to provide all essential generic drugs as per the state list free of cost to all public health facilities. However, adequate efforts have to be made to ensure the effective implementation and sustenance of this endeavor. These findings are corroborated by different studies in several states across the country in which the availability of medicines in public health sector varied from 0-43%. (9-10) Rapid health surveys similar to the present study can go a long way in monitoring this effort. There should be a regular practice of prescription audit to discourage doctors from overprescribing or prescribing branded drugs from private chemist shops. An online system

of inventory control and monitoring of the procurement and supply chain should be developed to reduce the lead time and to keep an eye on the entire mechanism. With the current trend of rising incidence of non-communicable diseases, essential drug list and drug dispensing policy should also be modified. Thus scarcity of manpower and erratic drug supply were two key vulnerable areas identified in this study which in fact are the common expectations of the clients as reported in a study in North India. (11)

The Ambulance service has improved accessibility to health care which is supported by another study in Punjab which reported equitable utilization of emergency ambulance service. The authors in that study stated that individuals at farther distance from the health facility and those who are poor are more likely to utilize the service. (12)

Despite all the constraints, the health system is serving a large population. The staff employed in the health system is working hard to deliver efficient health care services as was evident from the large volume of service outputs. With right direction and support, health services can perform better. Health sector budget needs to be increased progressively to achieve universal health coverage. According to a previous cost estimation, in order to universalize health care, using generic drugs, a per capita cost of Rs. 1713 has to be spent by the state which roughly amounts to 2% of the GDP of Punjab. (13) The state budget should can be increased to provide health care initially to more vulnerable section of population but in due course, aim should be provide basic healthcare to all.

Conclusions

Rapid health service assessment using a mixed method approach can identify the strengths and bottlenecks in health care delivery. Erratic supply of drugs, scarcity of human-resources and inadequate financing of health services were identified as key weaknesses requiring immediate attention. Physical infrastructure, management information system, large quantum of service delivery outputs despite constraints are the major strengths of health services in Punjab. Rapid appraisal periodically by an independent expert group should be an integral part of the monitoring mechanism.

Recommendation

Rapid health service assessment using a mixed method approach should be an integral part of the monitoring & evaluation mechanism.

Limitation of the study

We acknowledge that some key indicators to assess the health system, especially those related to equitable utilization of health services as well as financial protection indicators cannot be computed using the routine data. This requires collection of key baseline information across the household characteristics relevant to the state such as caste and income to estimate coverage of services across caste and income levels. Rapid sample surveys on a representative population are also required to estimate the extent of financial protection offered by the health system.

Relevance of the study

A rapid assessment of health service using a mixed methods approach can identify the key strengths and weaknesses of a health system. It is feasible to periodically undertake rapid assessments as part of the monitoring & evaluation system.

Authors Contribution

RK conceptualized the idea. RK, JPT, NS, MM, MG, MK and SB were involved in collection of data. RK, JPT, NS, MM, SP, PVML were involved in analysis of data who had also provided valuable inputs during data collection. JPT prepared the first draft of the manuscript. All the authors critically reviewed the manuscript and approved the final draft.

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Tables

TABLE 1 LIST OF HEALTH FACILITIES SELECTED IN THREE DISTRICTS OF PUNJAB

Type of Health Facility	Fatehgarh Sahib		Mansa		Tarn Taran		All	
	Total	Sample	Total	Sample	Total	Sample	Total	Sample
District Hospital	1	1	1	1	1	1	3	3
Sub-District Hospital	1	1	1	1	1	1	3	3
Community Health Centre	4	2	4	2	9	1	17	5
Primary Health Centre	14	4	17	4	28	2	59	10
Sub-Centre	73	8	101	7	153	4	327	19
Total	123	16	162	15	251	09	536	40

TABLE 2 METHODS OF ASSESSMENT OF THE HEALTH CARE SYSTEM IN PUNJAB

Building blocks of health system	Method of assessment
Service delivery	- Interviews with medical officer and facility staff - Record review at facility and district level
Human Workforce	- Interviews with medical officer and facility staff - Record review at district and state level
Information systems	- Interviews with medical officer, facility staff, staff at the district level - Record review at facility and district level
Drugs and equipment	- Interviews with medical officer, facility staff, and patients - Review of drug indent registers - Interviews with the pharmacist at facility level and district level
Financing	- Interviews with the medical officer and pharmacist - Interviews with the civil surgeon and finance section at district level - Review of <i>Rogi Kalyan Samiti</i> registers
Governance	- Interview with the Civil Surgeon - Interviews with medical officer and facility staff

TABLE 3 STAFF POSITION AT PUBLIC HEALTH FACILITIES IN SELECTED DISTRICTS OF PUNJAB

Staff categories	Fatehgarh Sahib	Mansa	Tarn Taran	Total	Vacancy %
Specialist doctors	37 (52)	27 (50)	36 (60)	100 (162)	38
General doctors	33 (38)	27 (55)	63 (74)	123 (167)	26
Nurses	53 (61)	39 (57)	67 (112)	159 (230)	31

Paramedics*	52 (64)	63 (73)	150 (164)	265 (301)	12
Supervisors**	28 (31)	29 (51)	86 (93)	143 (175)	18
Health Workers (Female)	92 (96)	102 (106)	252 (281)	446 (483)	8
Health Workers (Male)	28 (73)	50 (103)	113 (147)	191 (323)	41

Figures in parentheses represent the sanctioned posts. * includes pharmacists, technicians etc. ** includes health inspectors, lady health visitors etc.

TABLE 4 SERVICE OUTPUT/STAFF/DAY IN PUBLIC HEALTH FACILITIES IN SELECTED DISTRICTS OF PUNJAB

Output indicators	Average Number/day
OPD patients/Doctor	39
Caesareans/Obstetrics & Gynecologist	1
Surgeries/Surgeon	6
Deliveries/Nurse	1
Lab tests/Technician	74
X-rays/Radiographer	20

TABLE 5 RESOURCES AVAILABLE IN PUBLIC HEALTH FACILITIES SELECTED DISTRICTS OF PUNJAB

Health personnel	Norms	Fatehgarh	Mansa	Tarn Taran	Total
Doctor : Nurse	1 : 3	1.3	1.4	1.5	1:1.3
Doctor : Population	1 : 3500	8,569	14,237	11,773	1:11,364
Nurse : Population	1 : 5000	11,317	19,713	17,396	1:15,938
Pharmacist : Population	1 : 10000	16,662	15,376	14,389	1:15.175
Lab technician : Population	1 : 10000	1,19,963	85,423	24,799	1:41,544
ANM : Population	1 : 5000	6,520	7,537	4,625	1:5,682
Bed : Population	1 : 3333	2,955	4,004	4,118	1:3,738

TABLE 6 UTILIZATION OF HEALTH SERVICES FOR ILLNESS TREATMENTS AND HOSPITALIZATIONS

Parameter	Fatehgarh Sahib	Mansa	Tarn Taran	Total
Population	5,99,814	7,68,808	11,65,535	25,34,157
Estimated no. of ailments	20,42,966	26,18,560	39,69,812	86,31,339
No. of ailments attended by Health Service	3,16,832	3,58,920	7,40,650	14,16,402
Estimated no. of hospitalizations/year	44,386	56,892	86,250	1,87,528
No. of hospitalizations/year by health services	17,499	25,288	23,914	66,701

TABLE 7 OVERALL FUNCTIONING OF PUBLIC HEALTH FACILITIES IN SELECTED DISTRICTS OF PUNJAB

Building blocks of Health System	Fatehgarh Sahib	Mansa	Tarn Taran
Infrastructure	Satisfactory	Satisfactory	Satisfactory
Human resources			
Specialist	Poor	Poor	Poor
Medical personnel	Good	Poor	Satisfactory
Para medical personnel	Satisfactory	Satisfactory	Satisfactory
Support staff	Poor	Poor	Poor
Drugs & equipment	Poor	Poor	Satisfactory
Health Management Information System	Satisfactory	Satisfactory	Good
Financing	Satisfactory	Satisfactory	Satisfactory
Governance	Poor	Satisfactory	Satisfactory
Overall	Satisfactory	Satisfactory	Satisfactory