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Muhammad Navid Tahir[1], Nauman Ali Ch[1], Muhammad Waqas Farooq[1], Ghazanfar Mubin[2] and Jafar Riaz Kataria
[3]

[1]Department of Public Health, University of the Punjab, Lahore, Pakistan (Correspondence to MN Tahir: navid.iscs@pu.edu.pk). [2]Directorate General Monitoring and Evaluation, Planning and Development Board, Government of Punjab, Pakistan.
[3]
Institute of Social and Cultural Studies, University of the Punjab, Lahore, Pakistan.

Abstract

Background: Primary health care services to promote the mental and physical health of communities include preventive, promotive, curative, general hygiene, and nutritional elements.

Aim: To assess the quality of service delivery at primary healthcare settings in Punjab, Pakistan.

Methods: Quantitative surveys were conducted at 106 health facilities: 92 basic health units (BHUs) and 14 rural health centres (RHCs) across Punjab in 2020. Data from the survey were supplemented with information from observations by the researchers and all data were analysed using SPSS version 25.

Findings: All the 7 district health authorities surveyed had monthly targets for number of normal deliveries and the outpatient department. Systems for safe transportation and storage of medicines were deficient except in 2 districts. Anti-venom and anti-rabies vaccines were either limited or not available at most of the health units visited. Some 14% of clinical equipment examined at the BHUs and RHCs were non-functional, and no BHU had ultrasonic machines to improve the quality of antenatal care. Sterilization of surgical instruments was unsatisfactory at most health units. Several key positions at BHU and RHC were vacant. Most health units did not have fence and their main buildings were in poor condition.

Conclusions: Several gaps were identified at the primary healthcare level in Punjab that need to be addressed to improve the quality of service delivery.

Key words: primary healthcare system, situation analysis, disease prevention and promotion, service quality Pakistan

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Introduction

The primary healthcare system has a fundamental role in improving the health status of any country's population. Primary healthcare services include preventive, promotive, curative, general hygiene, and nutritional elements to promote the mental and physical health of a local community (1).

Pakistan is the 5th most populous country in the world, comprising a population that is 66% rural and 34% urban (2). Punjab is the most populous province in Pakistan, hosting over 50% of the country's total population (2-3). Pakistan is struggling to improve health indicators such as maternal mortality rate (MMR), Infant Mortality Rate (IMR), under-5 mortality rate, immunisation coverage, contraceptive prevalence rate (CPR), and deliveries by skilled birth attendants (SBA) (2,4-7). Declines in the maternal, infant, and child mortality rates were slower in Pakistan than in neighbouring countries. Official reports from Pakistan show that IMR and MMR in Punjab are 62 per 1000 live births and 170/100 000 respectively, which are high (2,4-7).

Pakistan also faces an enormous burden of stunted children, although stunting decreased from 33.5% in 2014 to 31.5% in 2018 (2, 4-7). Wasting is another condition that indicates a child's nutritional condition. As opposed to stunting, wasting is patent to the child's current nutritional status. The Multiple Indicator Cluster Survey (MICS) 2017–2018 showed that overall, 7.5% of children were wasted, 2% were overweight, and 21.2% were underweight in Punjab (2,5-8).

Punjab has a large primary and secondary healthcare delivery system that includes: basic health units (BHUs), rural health centres (RHCs), tehsil headquarters (THQ), and district headquarters (DHQ) hospitals. A BHU is a first-level healthcare facility located at a union council. A BHU serves a population of around 25 000–50 000 people and provides promotive, preventive, and curative services, and referral to higher-level facilities. A RHC is a second-level healthcare facility that serves a population of around 50 000–100 000 people, and in addition to the service package offered at BHUs, it provides basic diagnostic and inpatient services. Both BHUs and RHCs form the primary healthcare delivery system (2).

This study was a situation analysis of the quality of public health care service delivery at BHUs and RHCs in Punjab to provide baseline data to inform public health policies and the decision-making.

Methodology

Two paper-based questionnaires were developed to conduct cross-sectional surveys at BHUs and RHCs across 7 major districts (Bahawalpur, Bahawalnagar, Bhakkar, Khushab, Muzaffargarh, Layyah, and Rahim Yar Khan) of Punjab. The questionnaires comprised 20 questions that included general information about the health facility and local community; major services offered by health facilities (average number of outpatients, antenatal

visits, and normal deliveries, etc.); availability of medicine, medical equipment, and medical staff; mechanisms of data collection; and waste management, etc. A total of 539 health units (248 24/7 BHUs + 221 General BHUs + 70 RHCs) in 7 districts of Punjab were identified. There are 2 types of BHUs in Punjab: General BHUs – provide services only during the morning shift (8 am–2 pm) from Monday to Saturday; and 24/7 BHUs – provide services all-day 7 days a week. Using a simple random sampling technique, 106 health units from the total were selected from all tehsils of a district, to ensure geographical representativeness. The surveys were conducted to assess the quality of service delivery at the primary healthcare level. Data from the survey were supplemented with the authors'/data collectors' personal observations during the field visits. Data analysis was performed using SPSS, version 25. Descriptive statistical analysis was used. Pearson's chi square test was used to find the association between 2 variables. Triangulation of the data was conducted through other data sources, such as secondary data

and photos taken during the field visits in November 2020.

Results

Outpatient Department and delivery targets

Across the BHUs and RHCs in Punjab, we noticed that the focus was on curative management and the number of deliveries, rather than on disease prevention and health promotion. Data analysis showed that the number of OPD patients and deliveries increased over the years. The same disease trends were examined across all health facilities visited during the study. All district health authorities (DHAs) had monthly targets for the number of deliveries, antenatal check-ups (ANCs), and OPD patients.

A significant association ($\chi 2 = 0.00$) was found between the status of a BHU and the average number of normal deliveries per month. About 77% of the total normal deliveries were performed at 24/7 BHUs, compared to about 23% at general BHUs during the study period; July 2018–June 2019 (Table 1).

Medicine availability

All health units were receiving a regular supply of medicines to manage their OPD patients and normal delivery procedures. However, many medical officers mentioned that for some cases, a complete range of medicines was not available to fully cure the diseases. For the treatment of dermatological and ear, nose and throat (ENT) infections, the entire range of medicines (e.g. tropical cream, gel, oil, lotion, patch, ointment, ENT drops, etc.) that can cure conditions such as scabies, dermatitis, otitis media, conjunctivitis, etc. was not available at all BHUs. The availability of medication to manage chronic conditions such as diabetes mellitus and hypertension was also limited. For snake and dog bites, there was either limited availability or absence of anti-venom and anti-rabies vaccines at most health units visited in the whole province.

Medicine logistics and storage

Except for Bahawalpur and Rahim Yar Khan, systems for the safe transportation of medicines to the BHUs and RHCs were deficient. In Bahawalpur and Rahim Yar Khan, DHAs were delivering the medicines to BHUs and RHCs, while in other districts, BHU/RHC officials had to arrange private transportation (car, van, rickshaw, motorcycle etc.) to pick up medicines from the DHA district warehouse. In all districts, except for Expanded Program on Immunization (EPI) vaccines and medicines, appropriate medicine storage systems were lacking. Most of the medicine store and pharmacy buildings were in poor condition and there were no air-conditioning systems to store the medicines at room temperature, i.e. 15°–25°C (59°–77°F), which could affect the efficacy and stability of the medicines.

Equipment availability and functionality

Of the 740 clinical equipment and surgical instruments examined at various BHUs and RHCs, 103 were non-functional, including 38 sterilizers (out of 61), 35 infant baby warmers (out of 48), and 9 infant weight machines (out of 85). X-ray units of nearly all RHCs were either not working or too obsolete to produce any remarkable images. None of the BHUs providing continuum of care from antenatal to delivery and postpartum care had ultrasonic machines.

Disinfection and sterilization

The sterilization of surgical equipment used during normal delivery was unsatisfactory at most of the health units visited across Punjab. Standard protocols or guidelines for sterilisation were not found at most health units. Simple boiled water was used to sterilise instruments at most locations, and autoclaves were available only in a few BHUs. The in-charge medical officers did not have any records or checks to confirm that sterilisation was performed regularly.

Availability of human resources

The medical officer is responsible for supervising the work of facility-based employees and outreach or community services at a BHU. Around 30% of the positions (including medical officers, lady health visitors and dispensers) were vacant at BHUs, therefore, at some places, due to the absence of medical officers, dispensers were managing OPD patients. Except for the RHCs in Bahawalpur and Rahim Yar Khan, other RHCs visited across the province were not well managed. Their indoor wards and general infection control conditions were unsatisfactory. At some places, medical officers were not present during the evening and night shifts, and where they were present, the majority were wearing casual clothes and not following the medical dress code.

Infrastructure, accessibility and security

Regarding health facility infrastructure, most BHUs and RHCs did not have boundary walls, and their main buildings were in poor condition and ideally should not be used. The majority of staff residences were in poor condition, therefore most of them were unoccupied. The backyards of most BHUs/RHCs resembled a cemetery. Many BHUs were situated in villages that have limited road infrastructure, making it difficult to reach them. Most Southern Punjab districts, such as Bahwalnagar, Rahim Yar Khan, and Muzaffargarh, have a wide geographical spread and many of their BHUs were located in remote areas, where there were limited safety and security arrangements. At all 24/7 BHUs and RHCs, female staff (lady health visitors, ayas, and midwives) worked for long hours. It was observed that at most of these centres, there was only an unarmed security guard during evening and night shifts, and at some places (especially in Rahim Yar Khan) there was no security guard.

Discussion

Primary healthcare units should act as health promotion settings and provide comprehensive promotional, preventive, curative, and palliative care to individuals and families. The goal of a BHU/RHC should be to empower individuals, families, and communities to improve their health as self-carers and caregivers

(9-11). Most health issues in a local community should be addressed at the primary level to reduce referrals and the burden on secondary and tertiary healthcare facilities which is a major problem in Punjab/Pakistan. Instead of focusing on monthly targets, the performance of a health unit should be measured in terms of the health status of the local community. Targets may be changed from curative to preventive approach as these kinds of performance targets may switch the focus of healthcare providers towards health promotion and decrease the burden of various diseases, which have high incidence in the community. The government should provide sufficient funding to strengthen primary health care services and incentives to health providers to help them make their community healthy.

Without strengthening primary healthcare services, the Sustainable Development Goals (SDGs) may not be achieved.

It is important to provide a wide range of quality medicines to BHUs/RHCs, so that they can cure or manage diseases at the primary level. For example, for the treatment of dermatological and ENT infections, the entire range of medicines (e.g. topical cream, gel, oil, lotion, patch, ointment, eye ear drops, etc.) should be provided to the health units, and for snake and dog bites, an adequate supply of vaccines should be ensured at all levels of healthcare across the province.

For better management of communicable and non-communicable diseases at BHUs, and to minimise referrals to upper levels, a basic diagnostic laboratory should be established at the BHUs. Better diagnosis at BHUs would help physicians in providing specific care to patients and improve disease outcomes and prognoses.

Standard guidelines should be developed for the safe handling, supply, and storage of medicines and supplies. An organised and efficient transportation system should be established to ensure the safe delivery of medicines from the district warehouse to all the BHUs/RHCs in the district. The government should provide adequate transport facilities to all DHAs across the

province, while the EPI logistics management information system could be used as a model.

All BHUs/RHCs need better infrastructure and storage facilities to ensure that the efficacy and stability of the drugs are not compromised. The quality of the drugs affects treatment outcomes, therefore, the provision of safe and quality drugs could help reduce the burden of diseases prevalent in the community.

The DHAs should ensure the availability and functionality of all essential equipment at the BHUs and RHCs. X-ray units of all RHCs should be operational, and obsolete units may be replaced with new ones. To improve the quality of antenatal care, ultrasonic machines should be provided to all BHUs, especially 24/7 BHUs.

The sterilisation of surgical equipment used for normal delivery and other surgeries was unsatisfactory at most of the health units visited across Punjab. After the introduction of 24/7 BHUs, the number of normal deliveries increased all over the province, therefore, disinfection and sterilisation of medical instruments should be a priority in all healthcare settings. Designated sterilisation areas should be established at BHUs and RHCs and standard operating procedures (SOPs) displayed at all health units. The in-charge medical officers should monitor this process to ensure that sterilisation is performed regularly and according to the SOPs. Ideally, the government should provide all health units with autoclaves that can generate a printed record for each sterilisation. From the printed record, the time, duration, and history of the sterilisation can be traced.

Regarding infection control measures in labour rooms, an encouraging practice was observed at all BHUs and RHCs in Bahawalpur. Similar to the operation theatres of DHQ and tertiary care hospitals, changeover areas for shoes and clothes were established, and staff were not allowed to use mobile phone inside the labour rooms. This practice should be adopted across all primary level healthcare settings in Punjab.

The occurrence of stillbirth was noticed while examining the childbirth registers at various BHUs. Since the district health mangers' focus was on infant mortality, the number of deliveries, and other SDG-related health indicators, it appeared that stillbirths were neglected in all districts. Keeping in focus the significance of this issue, it is suggested that the DHAs should delineate the specific demographic and social risk factors that contribute to stillbirth. By doing this, the budgetary decisions for areas most vulnerable to stillbirth cases could be better informed.

For efficient functioning of the health units and better health outcomes, all vacant positions at BHUs and RHCs should be filled by the Primary and Secondary Healthcare Department. Since most RHCs are located along main roads and receive road crash emergency cases regularly, their emergency and trauma management capacity should be enhanced. The RHCs should have essential equipment and skilled human resources to provide basic emergency trauma, and airway, breathing, and circulation cover to patients. Better management of emergency and trauma patients at the primary healthcare level can minimise morbidity, mortality, and severity of trauma.

The different types of data collected at the BHUs and RHCs (OPD, deliveries, ANC, EPI, disease surveillance, pharmacy and medicine inventory, district health information system, etc.) should be computerised and instead of several different data collection methods, a centralised health data collection system, such as HIMS (Hospital Information Management System), should be introduced at all health units in Punjab. The scope of the HIMS should be adapted to meet the needs of a BHU or RHC. A centralised data collection system could ensure uniformity in data collection that would improve the quality and integrity of health data.

A pharmacy management system would help minimise the theft of medicine, which was a common problem at primary healthcare settings across the province. HIMS will maintain a complete inventory and dispensing details of each medicine at the hospital's main pharmacy and the inventory management system will help track medicine stocks and detect any theft.

Since most BHUs and RHCs were built during the 1980s and were not renovated or maintained regularly, the majority of these buildings are dilapidated and do not qualify to be a health setting. Nearly all the BHUs and RHCs need new, purpose-built buildings and infrastructure, which is fundamental to improving the quality of health care service.

All health units should have easy and comfortable access from the main roads. Accessibility could be a determinant in the under- and over-utilisation of a health facility. Accessibility and road infrastructure of BHUs with limited access should be improved/upgraded. The safety and security of all health units should also be improved. The following actions may be helpful: appointing an armed security guard for all BHUs and RHCs, especially 24/7 facilities; constructing boundary walls (including safety elements such as a rigid fence, barriers, etc.) at all health units; providing electricity and power backup for the main building and residential quarters; and fully illuminating the health facility from all sides (inside/outside).

Conclusions

This is the first comprehensive study that examines the current status of the quality of services at public healthcare settings at the primary level in Punjab. Several gaps were identified in areas such as performance targets; medicine availability and disease management; medicine handling, transportation and storage; disinfection and sterilization; availability of human resources; emergency and trauma management; data collection and reporting; infrastructure and accessibility; and safety that should be addressed to improve service delivery at the primary healthcare level in Punjab/Pakistan.

Ethical approval

This research was conducted in line with the WHO Eastern Mediterranean Health Journal guidelines on the protection of research participants, and participation in the study was informed and voluntary. This study was conducted under a government department at government-operated primary healthcare facilities across the Punjab Province. Official approvals were obtained and research ethics was observed while interviewing research participants.

Funding: None.

Competing interests: None declared.

Analyse situationnelle de la qualité des services de soins de santé primaires au Pakistan

Résumé

Contexte : Les services de soins de santé primaires destinés à promouvoir la santé mentale et physique des communautés comprennent des aspects de prévention, de promotion, de traitement, d'hygiène générale et de nutrition.

Objectif : Évaluer la qualité de la prestation de services dans les établissements de soins de santé primaires de la région du Pendjab (Pakistan).

Méthodes : Des enquêtes quantitatives ont été menées dans 106 établissements, dont 92 unités de soins de santé de base et 14 centres de soins de santé ruraux du Pendjab au cours de l'année 2020. Les données de l'enquête ont été complétées par des informations provenant d'observations réalisées par des chercheurs, et elles ont toutes été analysées à l'aide du logiciel SPSS version 25.

Résultats : Les autorités sanitaires des sept districts étudiés devaient toutes réaliser des objectifs mensuels en termes de nombre d'accouchements normaux et de consultations externes. Les systèmes permettant d'assurer le transport et le stockage sécurisés des médicaments étaient défaillants, sauf dans deux districts. Les sérums antivenimeux et les vaccins antirabiques étaient indisponibles ou en quantités limitées dans la plupart des unités de soins de santé ayant fait l'objet d'une visite. Près de 14 % des équipements cliniques évalués dans les structures susmentionnées étaient non fonctionnels, et aucune unité de soins de santé de base ne disposait de machines à ultrasons permettant d'améliorer la qualité des soins prénatals. La stérilisation des instruments chirurgicaux n'était pas satisfaisante dans la plupart des unités de santé. Plusieurs postes clés au sein des unités de soins de santé de base et des centres de soins de santé ruraux étaient vacants. La plupart des unités ne disposaient pas de clôtures et les bâtiments principaux étaient en mauvais état.

Conclusion : Plusieurs lacunes ont été identifiées dans les établissements de soins de santé primaires au Pendjab et doivent être comblées pour améliorer la qualité de la prestation de services.

WHO EMRO | Situation analysis of the quality of primary health care services in Pakistan

: أُجريت مسوحات كَميَّة في 106 مرافق صحية : 92 وحدة صحية أساسية و 14 مركزًاطرق البحث
صحيًّا ريفيًّا في جميع أنحاء البنجاب في عام 2020 على مدار 6 أشهر . واستكمل الباحثون
البيانات بمعلومات من الملاحظات، وحُلِّلت جميع البيانات بالإصدار 25 من برنامج
SPSS.

: كانت لجميع السلطات الصحية السبع في المناطق، المشمولة بالمسح، أهدافٌ شهريةالنتائج
لعدد الولادات الطبيعية وعدد الزيارات لقسم العيادات الخارجية . ولوحظ قصور في
النُّظُم المناسبة للنقل الآمِن للأدوية وتخزينها، ما عدا منطقتين . وكان توافر
اللقاحات المضادة للسموم والمضادة لداء الكلب محدودًا، أو كانت اللقاحات غير متوفرة
في معظم الوحدات الصحية التي جرت زيارتها في البنجاب . وكانت نحو 14% من المعدات
السريرية التي فُحصت في الوحدات الصحية الأساسية والمراكز الصحية الريفية لا تعمل،
ولم يكن لدى أي من الوحدات الصحية الأساسية أجهزة تعمل بالموجات فوق الصوتية لتحسين
جودة الرعاية السابقة للولادة . وكان تعقيم الأدوات الجراحية غير مُرضٍ في معظم
الوحدات الصحية . وكانت هناك عدة وظائف رئيسية شاغرة في الوحدات الصحية الأساسية
والمراكز الصحية الريفية . ولم يكن لدى معظم الوحدات الصحية أسوار، وكانت مبانيها
الرئيسية في حالة سيئة .

: حُدِّدت عدة ثغرات على مستوى الرعاية الصحية الأولية في إقليم البنجابالاستنتاجات
يلزم سدُّها لتحسين جودة تقديم الخدمات العامة .

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