

Challenges Faced by Healthcare Professionals in Delivering Emergency, Medical, and Gynaecology Services at Rajshahi Medical College Hospital

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Abstract

Healthcare services play a crucial role in maintaining population health by providing timely medical care and disease management. However, healthcare professionals often encounter various challenges that may affect the quality and efficiency of service delivery. This study aimed to explore the challenges faced by healthcare professionals in enhancing healthcare services in the Emergency, Medicine, and Gynaecology departments of Rajshahi Medical College Hospital (RMCH), Bangladesh. A descriptive cross-sectional study was conducted from August 2023 to March 2024 among 238 healthcare professionals, including doctors, nurses, and technicians. Data were collected using a structured dichotomous questionnaire and analyzed using SPSS version 22.0 with descriptive statistics. The findings revealed that 61.76% of respondents reported satisfaction with the existing infrastructure, while 82.35% confirmed the availability of essential drugs and medical equipment. Additionally, 75.63% indicated that government funding was adequate, and 79% believed that current healthcare policies and regulations were effective. Despite these positive perceptions, several challenges were reported, including shortages of healthcare personnel (41.17%), limited technological resources (40.34%), inappropriate population-to-bed ratios (55.04%), and difficulties in managing emerging and re-emerging diseases (87.81%). The study concludes that although key healthcare resources such as drugs, equipment, and policy support are generally adequate, significant operational challenges remain. Addressing workforce shortages, improving technological capacity, and optimizing hospital resource allocation are essential to further strengthen healthcare service delivery in tertiary-level hospitals in Bangladesh.

Keywords: Gynaecology services, Healthcare workforce, Hospital resource management, Infectious diseases, Service delivery challenges.



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Introduction

Healthcare services are foundational to the wellbeing of any society, encompassing preventive, curative, rehabilitative, and emergency care delivered across levels of a health system (Mohiuddin 2020). In Bangladesh, public tertiary hospitals play a crucial role in meeting population health needs, particularly for serious and acute conditions that cannot be managed at primary or secondary care facilities. Bangladesh has achieved notable gains in maternal and child health, vaccination coverage, and reduction of infectious diseases in recent decades. However, systemic challenges remain pervasive. Hospital infrastructures frequently operate beyond their design capacity due to rapid urbanization, population growth, and the influx of patients bypassing lower levels of care (Bangladesh Healthcare International 2025).

Studies of hospital resource constraints in Bangladesh consistently highlight the central role of human resources in shaping healthcare outcomes. Research involving medical officers in public hospitals found that staff shortages across clinical and support cadres- doctors, nurses, laboratory technicians, and cleaners were among the most prominent barriers to effective healthcare delivery (Haque and Chowdhury 2024, Nuruzzaman et al. 2022). Infrastructural limitations, such as inadequate diagnostic equipment and crowded consultation spaces, further exacerbate these challenges, contributing to healthcare professionals' stress and diminishing their capacity to provide quality services. These findings reflect broader issues documented internationally in resource-limited settings, where workforce shortages, equipment gaps, and technology deficits significantly hinder care (Rahman and Islam 2025).

Beyond workforce limitations, infrastructure and technology play a pivotal role in healthcare quality. Many hospitals in Bangladesh lack up-to-date diagnostic tools and hospital information systems that streamline patient management and data sharing. A systematic review of healthcare information systems implementation in developing countries, including Bangladesh, shows that fragmented and outdated technology impedes efficient patient care, contributing to administrative delays and reduced capacity to respond to complex medical needs (Rahman and Islam 2025).

Routine maintenance of critical equipment for example, functional CT/MRI scanners, ventilators, or dialysis units- often suffers due to funding constraints, leading to suboptimal service availability. These gaps are especially problematic in emergency and internal medicine departments, where timely and accurate diagnostics are vital for life-saving interventions. In addition to chronic resource shortfalls, the health sector must manage the rising burden of emerging and re-emerging diseases, which require coordinated responses, specialized training, and public health preparedness. These limitations result in increased workloads for healthcare professionals, compromised service quality, and reduced responsiveness to patient needs particularly in emergency, medicine, and gynaecology services where timely care is critical to patient survival and outcomes. Understanding the multifaceted challenges faced by healthcare professionals in this context is vital for informing evidence-based strategies for health system strengthening. Insights from this study will help policymakers, hospital administrators, and health planners design targeted interventions to improve human resource planning, infrastructure investment, and service delivery processes. Moreover, it can guide efforts to enhance emergency responsiveness, strengthen clinical capacity in gynaecology and internal medicine, and ensure equitable access to quality care across regions. Addressing these challenges can strengthen the resilience and effectiveness of tertiary care services, ensuring that institutions can better fulfil their critical role in Bangladesh's healthcare landscape.

Methodology

Study design and setting

A descriptive cross-sectional study design was employed to explore the challenges faced by healthcare professionals in enhancing health services. This design was selected because it allows assessment of existing conditions, perceptions, and institutional challenges at a specific point in time. The study was conducted in the Departments of Emergency, Medicine, and Gynaecology at Rajshahi Medical College Hospital (RMCH), Rajshahi, Bangladesh. Data collection took place over an eight-month period from August 2023 to March 2024.

Study population and sampling technique

The study population consisted of healthcare professionals including doctors, nurses, and medical technicians who were actively working in the selected departments during the study period. A total of 238 respondents were included in the study. Participants were selected using a purposive sampling technique, as the study specifically targeted professionals directly involved in patient care and service delivery.

Inclusion criteria

- Doctors, nurses, and technicians working in Emergency, Medicine, or Gynaecology Departments.
- Minimum of six months of working experience at RMCH.
- Willingness to participate and provide informed consent.

Exclusion criteria

- Healthcare professionals on leave during the data collection period.
- Administrative staff not directly involved in clinical service delivery.
- Individuals unwilling to participate.

Development of the data collection instrument

Data were collected using a structured dichotomous questionnaire (Yes/No format) developed based on:

- Extensive literature review.
- Study objectives.
- Consultation with public health experts and senior clinicians.

The questionnaire consisted of several sections:

1. Socio-demographic characteristics (age, gender, profession, years of experience),
2. Infrastructure and facility adequacy,
3. Availability of healthcare personnel,
4. Availability of drugs and medical equipment,
5. Population-to-patient bed ratio,
6. Government funding and financial support,
7. Routine monitoring and management practices,
8. Training on emerging and re-emerging diseases,
9. Challenges faced during service delivery.

To ensure content validity, the draft questionnaire was reviewed by experts in public health and hospital administration. A pilot test was conducted among a small group of healthcare professionals to assess clarity, reliability, and internal consistency. Necessary modifications were made before final administration.

Data collection procedure

Data were collected through self-administered printed questionnaires distributed in person during duty hours with permission from departmental authorities. The purpose of the study was clearly explained to participants prior to distribution. Adequate time was given to complete the questionnaire, and completed forms were collected on the same day to minimize non-response bias.

Data management and analysis

Collected questionnaires were checked for completeness and consistency. Data were manually coded and entered into a computer database. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) version 22.0.

Descriptive statistics such as frequency and percentage were used to summarize categorical variables. Inferential statistical tests were applied where appropriate to determine associations between variables. A p-value of <0.05 was considered statistically significant. In addition, thematic analysis was conducted to identify recurring patterns and major categories of challenges faced by healthcare professionals.

Quality control measures

To maintain data quality:

- Standardized instructions were provided to participants,
- The questionnaire was pre-tested,
- Data entry was double-checked for accuracy,
- Statistical validation procedures were followed.

Ethical considerations

Ethical principles were strictly maintained throughout the study. Prior to data collection, formal permission was obtained from the appropriate hospital authority at Rajshahi Medical College Hospital. Participants were informed about:

- The purpose and objectives of the study,
- Voluntary nature of participation,
- Right to withdraw at any time without consequences,
- Confidentiality and anonymity of responses.

Written informed consent was obtained from all participants before data collection. No personal identifiers were recorded in the questionnaire to ensure privacy. The collected data were used solely for academic and research purposes and were stored securely to prevent unauthorized access. The study complied with ethical guidelines for research involving human participants and ensured respect, beneficence, and justice throughout the research process.

Results

Among the 238 respondents, 147 (61.76%) reported that adequate infrastructure was available, while 91 (38.24%) disagreed. The difference was found to be statistically significant ($p < 0.05$). These findings suggest that although a majority perceived the infrastructure as adequate, a substantial proportion expressed concerns, indicating the need for further improvements to ensure consistent quality of care (Table 1).

Table 1: Distribution of the respondents by adequate infrastructure.

Adequate infrastructure	Frequency	Percentage (%)	Comparison variable (ensure quality of patient care)	P-value
Yes	147	61.76	Enough staff	0.00
			Training program helpful	0.01
No	91	38.24	Sense of accountability	0.04
			Technology efficiency	0.00
Total	238	100	Transparent communication	0.02
			Teamwork	0.02

The professional distribution of the respondents. The majority of participants were nurses, accounting for 129 (54%) of the total sample. This was followed by doctors, who comprised 60 (25%) of respondents. Technicians represented the remaining 49 (21%) of the study population (Fig. 1).

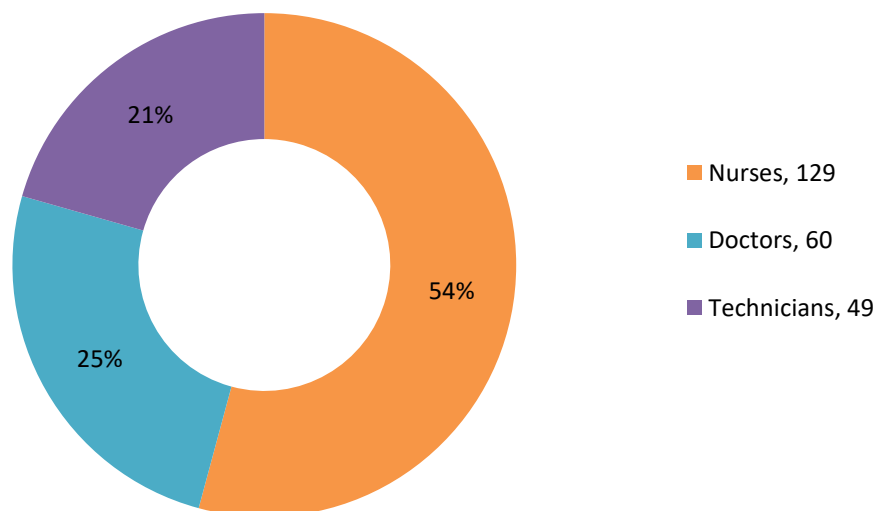


Fig. 1: Distribution of respondents by occupational status (n = 238).

The illustrates that 140 (58.83%) respondents reported the availability of adequate healthcare professionals, whereas 98 (41.17%) indicated that healthcare personnel were insufficient. The difference was found to be statistically significant ($p < 0.05$). These findings suggest that although more than half of the respondents

perceived staffing as adequate, a considerable proportion expressed concerns, which may affect the overall quality and efficiency of healthcare service delivery (Fig. 2).

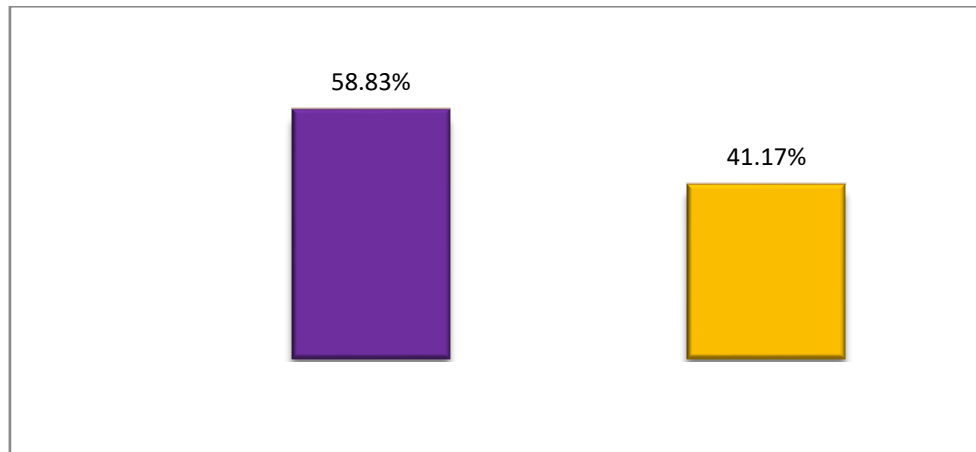


Fig. 2: Distribution of respondents by availability of healthcare professionals.

The indicates that 180 (75.63%) respondents reported receiving adequate funding from the government, while 58 (24.37%) stated that funding was insufficient. This finding suggests that although the majority perceived government funding as adequate, nearly one-quarter of the respondents expressed concerns regarding financial support, which may influence the overall quality and sustainability of healthcare services (Fig. 3).

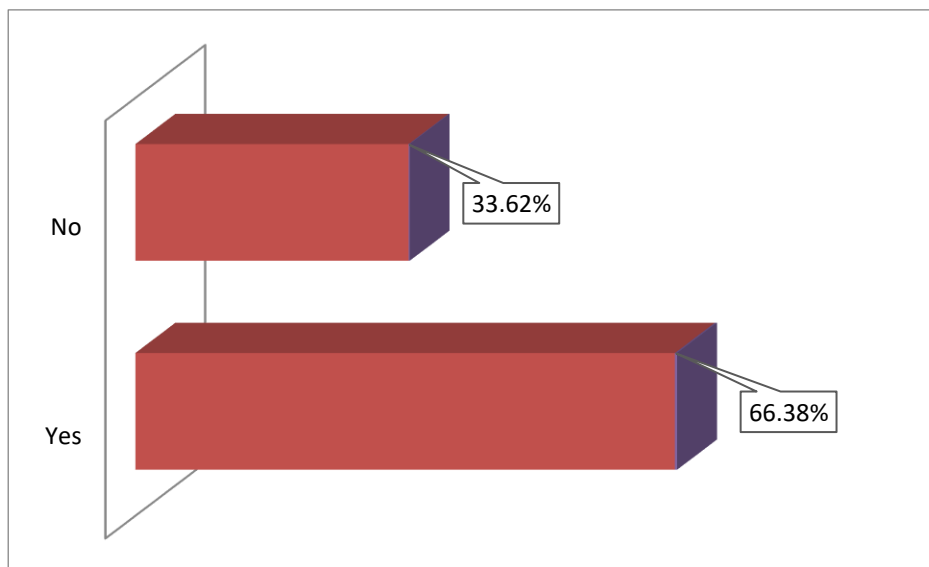


Fig. 3: Distribution of respondents by adequate funding from the government.

Table 2 depicts that 59.66% of respondents agreed that adequate technology was available in their departments, while 40.34% disagreed. These findings suggest that although a majority perceived technology availability as satisfactory, a substantial proportion of healthcare professionals reported inadequacy, which may impede efficient and timely delivery of healthcare services.

Table 2: Distribution of respondents by technology available in health services.

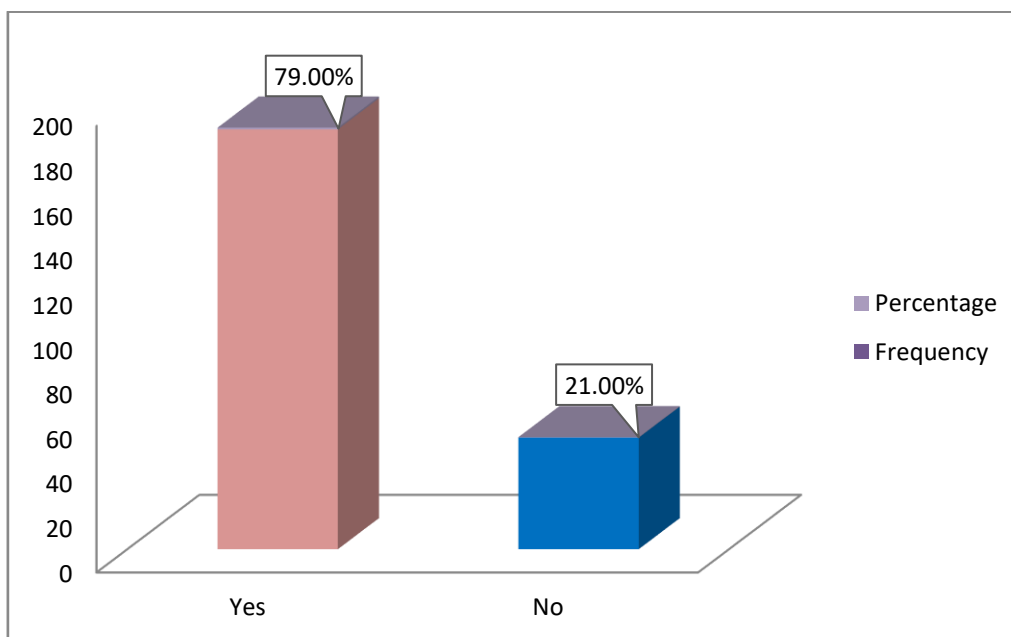
Availability of technology	Frequency	Percentage (%)
Yes	142	59.66
No	96	40.34
Total	238	100

The results indicate that 87.81% of respondents reported facing challenges in managing newly emerged or re-emerged diseases, whereas 12.19% did not experience such difficulties. This finding demonstrates that a substantial majority of healthcare professionals encounter significant obstacles in addressing emerging and re-emerging health threats, emphasizing the need for enhanced preparedness, targeted training, and improved resource allocation to effectively manage evolving disease patterns (Table 3).

Table 3: Distribution of respondents by faced challenges in managing newly emerged or re-emerged diseases.

Challenges in managing newly emerged or reemerged diseases	Frequency	Percentage (%)
Yes	209	87.81
No	29	12.19
Total	238	100

Fig. 4 indicates that 188 (79%) respondents considered the current healthcare policies and regulations in Bangladesh to be effective, while 50 (21%) disagreed (n = 238). This suggests that although most healthcare professionals have confidence in the existing policy framework, a significant minority perceive shortcomings, pointing to potential gaps in policy execution or its practical impact on service delivery.

**Fig. 4:** Distribution of respondents by effectiveness of current healthcare policies and regulation in Bangladesh.

The results shows that the highest proportion of respondents who reported facing challenges in managing emerging and re-emerging infectious diseases were nurses, accounting for 114 (54.55%). Approximately 40% of participants reported inadequacies in infrastructure, availability of staff, and access to technology. A large majority, 196 (82.35%), agreed that drugs and medical equipment were adequately available. However, 131 (55.04%) respondents disagreed that the population-to-patient bed ratio was appropriate. Furthermore, about one-third of the respondents, 80 (33.62%), reported that government funding was not adequate. The associations observed in these findings were statistically significant ($p < 0.05$). Overall, the results indicate that while the availability of drugs and equipment is relatively satisfactory, significant concerns remain regarding infrastructure, staffing, technology, bed capacity, and funding, which may affect the quality and efficiency of healthcare service delivery (Table 4).

Table 4: Distribution of challenges of healthcare professional respondents by occupational status at RMCH.

Challenges of healthcare professional	Occupational status			Total	P-value	
	Doctors n (%) 60 (25%)	Nurses n (%) 129 (54%)	Technologist n (%) 49 (21%)			
Infrastructure	Yes	36 (24.48%)	81 (55.11%)	30 (20.41%)	147(61.76%)	0.008
	No	24 (26.38%)	48 (52.75%)	19 (20.87%)	91 (38.24%)	
Available staff	Yes	40 (28.58%)	75 (53.57%)	25 (17.85%)	140 (58.83%)	0.001
	No	20 (20.41%)	54 (55.11%)	24 (24.48%)	98 (41.17%)	
Availability of drugs & medical equipment	Yes	49 (25.00%)	107 (54.60%)	40 (20.40%)	196 (82.35 %)	0.001
	No	11 (26.20%)	22 (52.38%)	09 (21.42%)	42 (17.65 %)	
Appropriate ratio of population & patient beds	Yes	26 (24.30%)	57 (53.28%)	24 (22.42%)	107 (44.96%)	0.005
	No	34 (25.96%)	72 (54.96%)	25 (19.08%)	131 (55.04%)	
Adequate funding from government	Yes	40 (25.32%)	85 (53.80%)	33 (20.88%)	158 (66.38%)	0.001
	No	20 (25.00%)	44 (55.00%)	16 (20.00%)	80 (33.62%)	
Routine Monitoring & Counseling	Yes	38 (24.52%)	87 (56.13%)	30 (19.35%)	155 (65.13%)	0.002
	No	22 (26.50%)	42 (50.60%)	19 (22.90%)	83 (34.87%)	
Availability of technology	Yes	35 (24.64%)	82 (57.75%)	25 (17.61%)	142 (59.66%)	0.009
	No	25 (26.04%)	47 (48.96%)	24 (25.00%)	96 (40.34%)	
Emerging and Re-emerging Infectious Diseases Problem	Yes	54 (25.84%)	114 (54.55%)	41 (19.61%)	209 (87.81 %)	0.005
	No	06 (20.68%)	15 (51.74%)	08 (27.58%)	29 (12.19 %)	
Satisfaction of management	Yes	46 (24.86%)	104 (56.22%)	35 (18.92%)	185 (77.73%)	0.001
	No	14 (26.42%)	25 (47.17%)	14 (26.41%)	53 (22.27%)	

Discussion

This study examined the challenges faced by healthcare professionals including doctors, nurses, and technicians working in the Departments of Emergency, Medicine, and Gynaecology at Rajshahi Medical College Hospital (RMCH). The findings underscore systemic constraints in infrastructure, human resources, technology, funding, and policies, which collectively impact service quality and health outcomes. These results align with existing evidence from Bangladesh and similar low- and middle-income settings, reinforcing the complexity of healthcare delivery challenges in resource-constrained environments.

One of the key findings of this research is the perception of inadequate infrastructure, with only 61.76% of respondents indicating that the hospital infrastructure was satisfactory. Though a majority regarded infrastructure as adequate, a significant portion (38.24%) expressed dissatisfaction, indicating that physical facilities may not uniformly support clinical needs across departments. Infrastructure constraints such as limited ward space, overcrowded emergency rooms, lack of advanced equipment, and insufficient diagnostic facilities have been documented as major barriers in other healthcare settings in Bangladesh (Rahman and Rayna 2024, Jahangir et al. 2024). Inadequate facilities compromise patient privacy, delay diagnoses, and reduce efficiency in patient management, especially in high-pressure environments such as emergency and obstetrics care where rapid response is critical.

The availability of trained healthcare professionals was another key challenge identified in our study. While 58.83% of respondents agreed that healthcare personnel were adequately available, 41.17% disagreed. This dichotomy highlights persistent staffing challenges, even in tertiary hospitals like RMCH. Literature on Bangladesh's healthcare workforce confirms chronic shortages of doctors, nurses, and allied health workers, along with an uneven distribution of specialists across regions. Public sector facilities frequently struggle to recruit and retain skilled clinicians, partly due to limited career development opportunities, uncompetitive compensation, and challenging work environments, leading many professionals to remain concentrated in metropolitan centers rather than regional hospitals (Islam et al. 2024). Insufficient staffing not only increases workload but also raises the risk of burnout, errors, and fatigue among healthcare workers, further undermining quality of care.

Consistent with broader national trends, this study found that government funding was perceived as adequate by 75.63% of respondents, but 24.37% still expressed concerns. This limited financial support is reflected in inadequate resource allocation for infrastructure upgrades, equipment maintenance, and workforce expansion (Haque and Chowdhury 2024). Chronic underfunding affects the ability of hospitals to procure essential drugs, maintain medical technologies, and implement evidence-based protocols consistently. In this study, however, a notable 82.35% of respondents agreed that drugs and medical equipment were adequately available. While this appears positive, it may reflect short-term procurement rather than sustained access, and it contrasts with other reports indicating periodic shortages of critical supplies in public hospitals (JICA Report 2025).

Technology availability also emerged as an area with mixed satisfaction; 59.66% of respondents agreed that appropriate technologies were available, while 40.34% disagreed. Modern diagnostic tools, efficient medical information systems, and advanced life-support technologies are essential for managing complex cases, especially in emergency and internal medicine departments. However, weak infrastructure, limited digital tools, and inadequate training on technology use have been identified across Bangladesh's healthcare settings, hindering emergency responsiveness and clinical decision making (Rahman and Islam 2025). Technology gaps not only delay patient care but also increase clinician workload, as manual processes often replace automated systems, reducing overall productivity.

The population-to-bed ratio was reported as inappropriate by 55.04% of respondents, indicating a major capacity issue. Bangladesh has a low hospital bed density- about 0.88 beds per 1,000 population, far below WHO benchmarks signifying that many tertiary hospitals are operating over capacity (The Business Standard 2025). Overcrowding amplifies workload pressures on doctors and nurses and creates barriers to providing timely and quality care. Tertiary hospitals like RMCH often serve as the default referral point for patients from all levels of the healthcare system, further intensifying patient loads and reducing efficiency. Such overcrowding can compromise infection control, extend waiting times, and reduce clinician-patient interaction time, which are essential for accurate diagnosis and patient satisfaction.

Our study also highlighted the significant challenge of managing emerging and re-emerging diseases, with 87.81% of respondents indicating difficulties in this area. The global rise of infectious diseases—exemplified by the COVID-19 pandemic—has strained healthcare systems worldwide, and Bangladesh has been no exception. During the pandemic, hospitals experienced sharp increases in patient volume while facing limited workforce and equipment shortages, further exacerbating workload pressures and exposing vulnerabilities in infection control and emergency preparedness (Islam et al. 2024). Healthcare professionals also require up-to-date training and protocols to respond effectively to evolving disease patterns, yet ongoing training programs remain inconsistent in many settings.

Despite these challenges, the majority of participants (79%) agreed that current healthcare policies and regulations are effective. This positive perception may reflect ongoing policy reforms aimed at improving service delivery frameworks and workforce management. However, effective implementation remains problematic due to systemic inefficiencies and gaps in resource distribution. Previous research has noted that the lack of coherent policy execution, poor coordination between healthcare levels, and weak governance structures impede meaningful improvements in public health services (Islam et al. 2024).

The role of nurses in managing healthcare challenges was also evident in Table 4, where a large proportion (54.55%) of nurses reported directly confronting issues related to emerging and re-emerging diseases. Nurses often serve as frontline responders, especially in emergency and inpatient settings, and their perspectives highlight the operational realities of service delivery. This aligns with global findings showing that nurses frequently face high workload pressures, emotional stress, and limited professional support, which can lead to burnout and attrition if left unaddressed (Rahman and Rayna 2024). Taken together, these findings affirm that healthcare system challenges at RMCH are multifaceted, involving interplay between structural, human resource, technological, and environmental factors. Importantly, while many respondents noted the adequacy of some resources, the discrepancies in perceptions reveal areas where hospital administration and policymakers need to focus sustained improvement efforts.

Implications for policy and practice

Strengthening healthcare services at RMCH and similar public hospitals requires a multi-pronged strategy. Policymakers must prioritize targeted investments in infrastructure, expand workforce recruitment and retention strategies, and ensure equitable allocation of specialists across regions. Enhancing clinical training programs to address emerging disease threats and integrating modern health information systems can improve both provider capacity and patient care quality. Furthermore, developing mechanisms for routine feedback from frontline workers can help administrators identify service gaps early and tailor interventions to actual needs.

Limitations

This study was limited to a single tertiary hospital and utilized self-reported data, which may introduce respondent bias. Nonetheless, the purposive sampling of doctors, nurses, and technicians provided a diverse perspective across key service departments. Future studies could expand to include multiple hospitals and incorporate qualitative interviews to enrich the understanding of contextual challenges.

Conclusion

The challenges identified in this study reflect persistent barriers in delivering high-quality healthcare services at RMCH, particularly in emergency, medicine, and Gynaecology departments. Infrastructure limitations, staffing shortages, technology gaps, funding constraints, and capacity mismatches underscore the complex operational environment in which healthcare professionals operate. While positive perceptions of policy effectiveness and availability of drugs point to some progress, significant improvements are necessary to ensure resilient health services capable of meeting emergent and routine clinical demands. Addressing these challenges through integrated policy action and resource optimization will be vital for enhancing the quality and responsiveness of tertiary health care in Bangladesh.

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