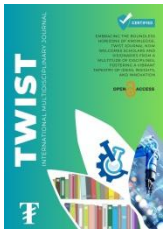
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Public Health Service Delivery During the COVID-19 Pandemic: Experiences from Katutura State Hospital in Namibia

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Abstract
The goal of this assessment is to make people aware of the dangers of the COVID-19 pandemic. COVID-19 was initially identified in China in December 2019, and it was declared a Public Health Emergency of International Concern in January 2020, making it a global pandemic. A pandemic, according to the World Health Organisation (WHO), is "an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people". This Pandemic left the planet and its inhabitants in states of turmoil and distress. The Corona Virus, also known as the COVID-19 Pandemic, made health-care delivery for both patients and health personnel, difficult for hospitals and health centres in Namibia. The study examined the global lockdown caused by the pandemic. The pandemic had a significant impact on service delivery. As a result of these situations, hospital service delivery was jeopardised. This study was conducted at Katutura State Hospital using a qualitative method with a sample size of 20 doctors and enrolled nurses. Descriptive analysis was used, with an interview guide serving as the study instrument. The study was limited by the number of participants. The investigation discovered that service delivery was severely impacted, particularly in the pharmacy sector, and that the virus slowed down all aspects of the institution. It is recommended that if patients should anticipate delays, informing them in advance would reduce unnecessary contact volume.

Keywords
corona virus pandemic, covid-19, public health, public hospital, service delivery, socio-economic development

INTRODUCTION

Due to persistent socio-economic challenges and fragile health systems, countries in Sub-Saharan Africa were identified as particularly vulnerable to the effects of the COVID-19 pandemic (Hulland, 2020). Measures implemented to contain the spread of the virus, including border restrictions, prolonged lockdowns, and interruptions in global supply chains, contributed to shortages of personal protective equipment (PPE), increased psychological distress, and rising levels of substance abuse (Mbunge, 2020). The pandemic also indirectly affected the management of other diseases in the region, leading to increased illness and mortality associated with endemic infections such as malaria (Sherrard-Smith, Hogan, & Hamlet, 2021).

In Namibia, challenges related to healthcare utilisation existed even before the emergence of COVID-19. Public health facilities often experienced long waiting times, which discouraged some individuals from seeking medical attention. Previous studies have shown that healthcare-seeking behaviour may be influenced by several factors, including perceptions that certain illnesses do not require formal treatment, the use of medications obtained from informal drug vendors, and reliance on traditional healing practices. In addition, cultural norms, socio-demographic characteristics, and health facility-related factors have been reported as important determinants of healthcare service utilisation.

Assessing a wider spectrum of healthcare services is essential for understanding the full extent of the pandemic's impact on the health sector. Moreover, analysing service utilisation trends over time can provide valuable insights into

which healthcare services were most affected during the pandemic. Against this background, the present study investigated patterns of healthcare utilisation before and during the COVID-19 outbreak and evaluated whether the trends observed during the pandemic differed significantly from those recorded in the pre-pandemic period. The study further sought to determine the extent to which COVID-19 influenced access to healthcare services in public hospitals in Namibia. The findings are expected to contribute to a deeper understanding of the pandemic's effects on healthcare utilisation and to identify the services that experienced the greatest disruption during this period.

Conceptual Perspectives on the Impact of COVID-19 on Healthcare Service Delivery

This study is informed by theories and scholarly perspectives relating to the emergence and spread of COVID-19. These theoretical foundations provide a basis for understanding the far-reaching consequences of the pandemic on healthcare systems and service delivery. They also assist in explaining how the outbreak disrupted the provision and utilisation of healthcare services, thereby supporting the investigation of its impact on public hospitals.

The COVID-19 pandemic significantly transformed healthcare service delivery worldwide. This included radiography and other diagnostic services. Healthcare institutions were compelled to redesign operational procedures to accommodate infection prevention measures, while continuing to provide essential services. As a result, evaluating the experiences of healthcare workers and the effectiveness of service delivery during and after the pandemic has become increasingly important.

The unprecedented nature of the pandemic created considerable challenges for healthcare professionals. Nurses, doctors, and other frontline workers experienced increased workloads, extended working hours, and heightened psychological pressure. These conditions contributed to fatigue, stress, and reduced staff morale. Moreover, the limited availability of information during the early stages of the outbreak generated uncertainty among both healthcare workers and patients regarding the safety of visiting healthcare facilities such as Katutura State Hospital.

The pandemic also exposed weaknesses in the availability and distribution of essential medical resources. Healthcare facilities experienced difficulties in securing adequate personal protective equipment (PPE), supplies which included gloves, masks, protective clothing, and other disposable medical materials required for infection prevention and control. The rapid increase in demand for these resources, coupled with disruptions in global supply chains, further strained healthcare systems. Consequently, many healthcare workers faced challenges in obtaining sufficient protective equipment while carrying out their duties.

Hospital service delivery was further affected by changes in admission procedures and patient prioritisation strategies. During peak periods of infection, healthcare facilities were often required to prioritise COVID-19 patients, resulting in restrictions on routine admissions and delays in the treatment of non-emergency cases. Miller and Radcliff (2020) reported that healthcare systems in several countries experienced substantial disruptions, with medical specialists redirecting their efforts toward urgent and critical cases while elective procedures were postponed. Radiology departments, for example, recorded significant reductions in patient volumes, with some facilities experiencing decreases ranging from 50 to 70%.

Researchers across various disciplines have highlighted that COVID-19, not only altered everyday social and economic activities but also fundamentally affected healthcare service delivery. Factors such as staff absenteeism, quarantine requirements, occupational stress, and increased healthcare expenditures contributed to service disruptions. In addition, modifications in healthcare delivery processes introduced new operational challenges that affected the quality and accessibility of healthcare services during the pandemic period.

General overview and definitions of Service delivery

Service delivery is widely recognised as a central function of public institutions and an important mechanism through which governments address the needs and expectations of citizens. It encompasses the provision of essential goods, services, and programmes that contribute to social welfare, economic development, and improved quality of life. In the public sector, service delivery represents the practical implementation of government policies and strategic objectives through the allocation of resources, management of processes, and provision of services to communities (Schmid et al., 2021).

The effectiveness of service delivery is not determined solely by the availability of services but also by the service quality, accessibility, reliability, and responsiveness to the needs of citizens. Consequently, effective service delivery requires a citizen-centred approach in which public institutions continuously assess community needs and ensure that services are provided efficiently and equitably. Essential public services commonly include: healthcare, education, housing, water and sanitation, electricity, transportation, communication, and waste management. These services play an important role in promoting public welfare and promoting socio-economic development (Shittu, 2020).

From an operational perspective, service delivery involves a combination of inputs, processes, outputs, and outcomes. Inputs such as financial resources, infrastructure, technology, and human capital are mobilised and transformed through administrative and managerial processes into services that are delivered to the public. The ultimate measure of service delivery effectiveness lies in the outcomes achieved, including improved living standards, enhanced public satisfaction, and the attainment of policy objectives (Alemi et al., 2018).

The relationship between public administration and service delivery is particularly important. Public administration provides the institutional and managerial framework through which government policies are translated into

actionable programmes, while service delivery represents the visible outcome of these administrative efforts. As a result, the success of public institutions is often assessed based on their ability to deliver services that meet public expectations and contribute to societal well-being (Miller & Radcliff, 2020).

Effective service delivery also serves a broader governance function by strengthening the relationship between governments and citizens. The consistent provision of quality services enhances public trust, promotes accountability, and reinforces the legitimacy of public institutions. Conversely, inadequate or inefficient service delivery can lead to public dissatisfaction, reduced confidence in government institutions, and increased demands for reform. For this reason, continuous monitoring and evaluation of service delivery performance remain essential for ensuring that public institutions fulfil their mandates and respond effectively to changing societal needs (Shittu, 2020).

Within the healthcare sector, service delivery is particularly critical because it directly affects population health and well-being. The availability of healthcare services, medical personnel, equipment, and essential medicines determines the capacity of health systems to respond to public health challenges. During health emergencies such as the COVID-19 pandemic, maintaining effective service delivery becomes even more important, as disruptions can significantly affect access to care, health outcomes, and the overall performance of healthcare institutions.

The challenges affecting service delivery

Effective service delivery remains a critical objective for both public and private institutions, as it directly influences customer satisfaction, public trust, and organisational performance. The quality of services delivered is largely dependent on the efficiency of operational processes, the availability of resources, and the ability of institutions to respond to the needs of their stakeholders. Consequently, organisations are required to engage in effective planning, coordination, and management to ensure that services are delivered efficiently and consistently (Shittu, 2020).

One of the significant challenges affecting service delivery is time management. Organisations often operate under resource constraints while simultaneously addressing multiple responsibilities and competing priorities. As a result, delays in service provision may occur, reducing the ability of institutions to meet public expectations and maintain service quality. Effective scheduling, prioritisation of tasks, and efficient utilisation of resources is therefore essential for improving service delivery outcomes (Shittu, 2020).

Another challenge relates to the management and coordination of human resources. Service delivery is inherently collaborative and typically requires the involvement of multiple departments, professionals, and stakeholders. Poor communication, unclear responsibilities, and weak coordination among organisational units can negatively affect service quality and efficiency. Consequently, institutions that fail to establish effective teamwork and coordination mechanisms often experience service disruptions, inefficiencies, and reduced customer satisfaction (Miller & Radcliff, 2020).

In the healthcare sector, service delivery is further influenced by the structure of healthcare partnerships and financing arrangements. Different service delivery models, including public provision, contracting-out arrangements, subsidies, and privatisation initiatives, create opportunities for expanding healthcare access and improving service availability. However, these arrangements may also introduce challenges related to accountability, resource allocation, monitoring, and quality assurance. The effectiveness of such partnerships therefore depends on clear contractual frameworks, adequate government oversight, and the equitable distribution of resources (Nuhu, Joseph, & Ngusa, 2020).

Additional challenges commonly associated with service delivery include inadequate funding, shortages of skilled personnel, limited infrastructure, insufficient technological support, and increasing demand for services. These constraints can reduce organisational capacity and hinder the achievement of service delivery objectives. In the healthcare environment, such challenges may compromise the accessibility, quality, and continuity of care, particularly during periods of increased demand or public health emergencies.

Overall, effective service delivery requires strong leadership, efficient resource management, effective coordination among stakeholders, and continuous monitoring of performance. Addressing these challenges is essential for improving organisational effectiveness, enhancing public trust, and ensuring that services meet the needs and expectations of the communities they are intended to serve. The challenges associated with service delivery became more pronounced during the COVID-19 pandemic, particularly within healthcare institutions. The rapid increase in patient numbers, shortages of personal protective equipment (PPE), staff absenteeism due to illness or quarantine requirements, and disruptions in the supply of essential medical resources placed significant pressure on healthcare systems worldwide. Healthcare facilities were required to adapt their operations while maintaining essential services under highly uncertain conditions. In Namibia, public hospitals such as Katutura State Hospital faced similar challenges, including increased workloads, resource constraints, and changes in service delivery procedures aimed at reducing the spread of the virus. These factors had the potential to affect the accessibility, efficiency, and quality of healthcare services, making it important to examine the extent to which the COVID-19 pandemic influenced service delivery within public healthcare institutions.

Impact of COVID-19 on health service delivery

The COVID-19 pandemic had far-reaching consequences for healthcare systems across the world, significantly affecting the accessibility, availability, and utilisation of health services. Compared to the pre-pandemic period, healthcare facilities in many countries experienced a substantial decline in patient attendance and service utilisation. This decline was largely attributed to factors affecting both healthcare providers and healthcare users. Many individuals avoided seeking medical

care due to concerns regarding contracting COVID-19 within healthcare facilities, while movement restrictions, lockdown measures, and disruptions to public transportation further limited access to healthcare services, particularly among urban populations (ABC, 2020).

On the supply side, healthcare institutions faced considerable operational challenges as resources were redirected toward the prevention, diagnosis, and treatment of COVID-19 cases. Many healthcare facilities reduced or suspended routine services to accommodate the growing number of COVID-19 patients, resulting in decreased access to essential healthcare services. In some instances, healthcare systems became overwhelmed by the increased demand for emergency and critical care services, thereby limiting their capacity to provide routine consultations, preventive services, and elective procedures. These disruptions had significant implications for population health and raised concerns regarding increased morbidity and mortality, particularly among vulnerable groups such as young children and individuals with chronic illnesses (ABC, 2020).

The pandemic also disrupted the delivery of healthcare services related to major communicable diseases, including HIV/AIDS, tuberculosis (TB), and malaria. As governments, healthcare providers, and international organisations concentrated their efforts on controlling the spread of COVID-19, less resources were available for routine disease prevention, testing, and treatment programmes. Public health campaigns encouraging individuals to seek healthcare services were reduced, contributing to lower rates of disease screening and treatment uptake. Consequently, interruptions in healthcare services increased the risk of delayed diagnosis, treatment interruptions, and disease transmission within communities.

The impact on HIV/AIDS services was particularly concerning in regions with a high disease burden. Reduced access to testing, counselling, and treatment services may have contributed to undiagnosed infections and interruptions in antiretroviral therapy, thereby increasing the risk of adverse health outcomes and continued transmission. Although service disruptions were reported globally, their effects were especially significant in Sub-Saharan Africa, which carries the largest share of the global HIV/AIDS burden. Similar concerns were raised regarding TB and malaria programmes, where disruptions in preventive and treatment services threatened to reverse years of progress in disease control.

Beyond direct healthcare impacts, the pandemic placed additional pressure on healthcare workers through increased workloads, staff shortages, occupational stress, and heightened exposure to health risks. Healthcare facilities were also confronted with shortages of medical supplies, personal protective equipment (PPE), and essential medicines, further complicating service delivery efforts. These challenges collectively affected the efficiency, quality, and continuity of healthcare services during the pandemic period.

Overall, the COVID-19 pandemic exposed existing weaknesses within healthcare systems while simultaneously creating new challenges for healthcare delivery. The resulting disruptions affected both routine and emergency healthcare services, highlighting the need for resilient health systems capable of maintaining essential services during public health crises. Understanding these impacts is critical for informing future preparedness strategies and strengthening healthcare service delivery in the face of similar emergencies. Although numerous studies have documented the impact of COVID-19 on healthcare service delivery globally, limited empirical evidence exists regarding the extent to which these disruptions affected public hospitals in Namibia. Consequently, there remains a need to investigate how the pandemic influenced healthcare service delivery at Katutura State Hospital, particularly in relation to service accessibility, resource availability, and patient utilisation patterns.

Impact of COVID-19 on HIV, Tuberculosis, and Malaria Services

Fig. 1, 2 and 3 illustrates the extent to which the COVID-19 pandemic disrupted the delivery of essential healthcare services related to HIV/AIDS, tuberculosis (TB), and malaria. The findings demonstrate that the pandemic affected not only COVID-19 patients but also individuals requiring diagnosis, treatment, and follow-up care for other major infectious diseases.

The disruption of HIV services was characterised by reductions in both testing and treatment referrals during the pandemic period. Restrictions on movement, fear of infection, and the reallocation of healthcare resources toward COVID-19 response activities contributed to lower utilisation of HIV-related services. Reduced testing rates may have resulted in delays in identifying new infections, while interruptions in treatment referrals potentially affected continuity of care for individuals living with HIV/AIDS. These challenges increased concerns regarding disease transmission and long-term treatment outcomes.

Among the major infectious diseases, tuberculosis services experienced some of the most severe disruptions. Data presented in Fig. 2 indicates substantial declines in both TB diagnoses and treatment referrals compared to pre-pandemic levels. Although treatment referrals in Africa gradually improved during the latter part of 2020, diagnostic services remained significantly below historical levels. The reduction in TB case detection suggests that many infected individuals may have remained undiagnosed, increasing the likelihood of ongoing community transmission and adverse health outcomes. The situation was even more pronounced in some regions of Asia, where healthcare disruptions affected both diagnosis and treatment services to a greater extent.

Malaria services were similarly affected by the pandemic. As illustrated in Fig. 3, declines in malaria diagnosis and treatment raised serious concerns, particularly within African countries where malaria remains endemic. The interruption of malaria-related healthcare services posed a significant risk to vulnerable populations, especially children

under the age of five, who account for a large proportion of malaria-related deaths. Reduced access to diagnosis and treatment services threatened to reverse decades of progress achieved in malaria prevention and control.

The findings presented in these figures suggest that the indirect effects of COVID-19 extended far beyond the management of the virus itself. Disruptions to routine healthcare services increased the risk of delayed diagnoses, treatment interruptions, and preventable deaths associated with other infectious diseases. Consequently, the pandemic exposed vulnerabilities within healthcare systems and highlighted the importance of maintaining essential health services during public health emergencies.

Researchers and international health organisations have warned that these service disruptions may have long-term implications for public health, particularly in developing countries where the burden of communicable diseases remains high. Reduced access to healthcare services increases the likelihood of undetected infections, continued disease transmission, and worsening health outcomes at both individual and community levels. Furthermore, the interruption of routine healthcare programmes threatens to undermine years of progress achieved in controlling diseases such as HIV/AIDS, tuberculosis, and malaria.

To address these challenges, health organisations have recommended the adoption of innovative and adaptive service delivery approaches. These include extending medication refill periods, decentralising the distribution of essential healthcare commodities, strengthening community-based healthcare interventions, and integrating disease screening services into broader public health programmes. Such measures can help ensure continuity of care while reducing the burden on healthcare facilities during future health emergencies. Consequently, it is important to investigate how COVID-19 affected healthcare service delivery within the Namibian context.

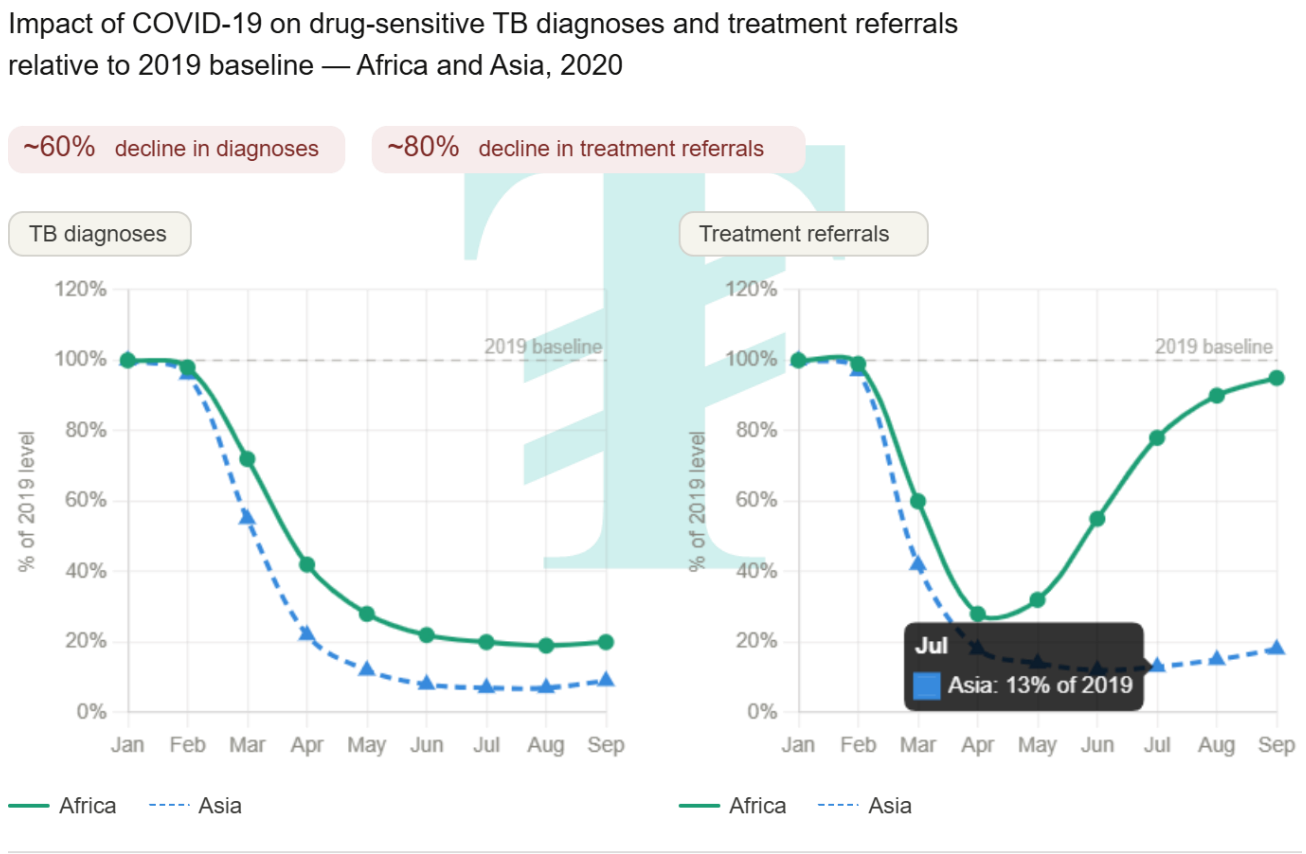


Fig. 1 Impact of COVID-19 on HIV treatment referrals (left) and testing right)

***Source**:* Adapted from **The Global Fund** (2021), The Impact of COVID-19 on HIV, TB and Malaria Services and Systems for Health: A Snapshot from 502 Health Facilities Across Africa and Asia

Fig. 1 above shows the impact of COVID-19 on HIV treatment referrals (left) and testing (right). Drug-sensitive tuberculosis was the most severely affected infectious condition, with almost 60% less diagnoses and nearly 80% less treatment referrals compared to 2019. Treatment referrals in Africa had rebounded to near-pre-pandemic levels by September 2020; nonetheless, drug-sensitive tuberculosis diagnosis in Africa was only about 20% of 2019 levels in September 2020. Both TB measures show far more severe disruptions in TB health care services in Asia.

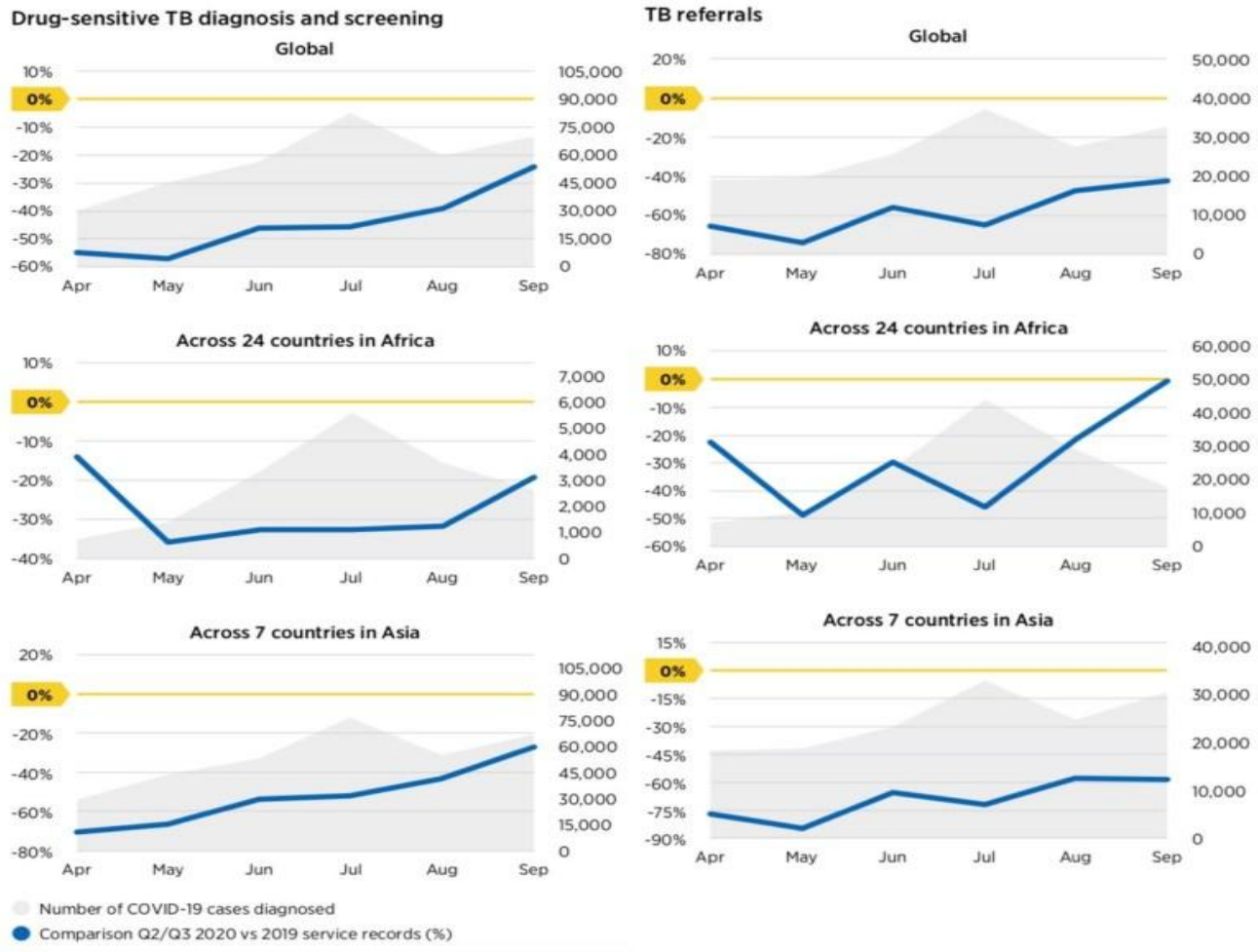


Fig. 2 Impact of COVID-19 on TB diagnosis (left) and referrals (right)

***Source**:* Adapted from **The Global Fund** (2021), The Impact of COVID-19 on HIV, TB and Malaria Services and Systems for Health: A Snapshot from 502 Health Facilities Across Africa and Asia

The worldwide malaria fatality rate has decreased by 60% since 2000. Nevertheless, Africa still accounts for 94% of all malaria cases and fatalities. Importantly, the drop in malaria treatment in Africa (Fig. 1), where the disease is widespread, poses a serious threat to a huge number of vulnerable Africans, particularly children under the age of five, who account for the majority of annual malaria deaths.

The authors warn that the disruption of key health care services is a severe concern to undiagnosed people, their communities, and the global health system. The risk of untreated individuals infecting others with HIV or tuberculosis—or succumbing to malaria without seeking treatment—has increased significantly since the pandemic. Furthermore, the authors warn that the epidemic has effectively halted years of progress in reducing disease burdens in Africa and the rest of the developing world. In response to these problems, the Global Fund suggests that health care facilities employ adaptive methods to minimise the number of clinic visits while improving health service delivery. Long-term medicinal prescriptions to provide continuous access to treatment, door-to-door decentralised distribution of long-lasting insecticidal nets and include tuberculosis screening in digital health screenings for COVID-19 are some examples. The observed disruptions in HIV, TB, and malaria services demonstrate the broader effects of COVID-19 on healthcare systems. These findings suggest that public hospitals in Namibia, including Katutura State Hospital, may have experienced similar challenges in maintaining essential healthcare services during the pandemic period. Consequently, it is important to investigate how COVID-19 affected healthcare service delivery within the Namibian context.

MATERIALS AND METHODS

This study applied a qualitative research approach to investigate the impact of COVID-19 on healthcare service delivery at Katutura State Hospital. Qualitative research is especially useful for examining and comprehending social issues because it captures individuals' experiences, perceptions, and interpretations in their natural settings. According to Aspers and Corte (2019), qualitative research advances scientific knowledge by providing deeper insights into complicated processes and discovering interpretations that quantitative methods may not reveal.

A case study design was employed because it facilitates an in-depth examination of a specific phenomenon within a real-life setting. This design enabled the researcher to gain a comprehensive understanding of healthcare service delivery during the COVID-19 pandemic at Katutura State Hospital. Case studies are valuable for exploring complex issues and identifying patterns, experiences, and contextual factors that influence individual and organisational behaviour (Percy, Kostere, & Kostere, 2015).

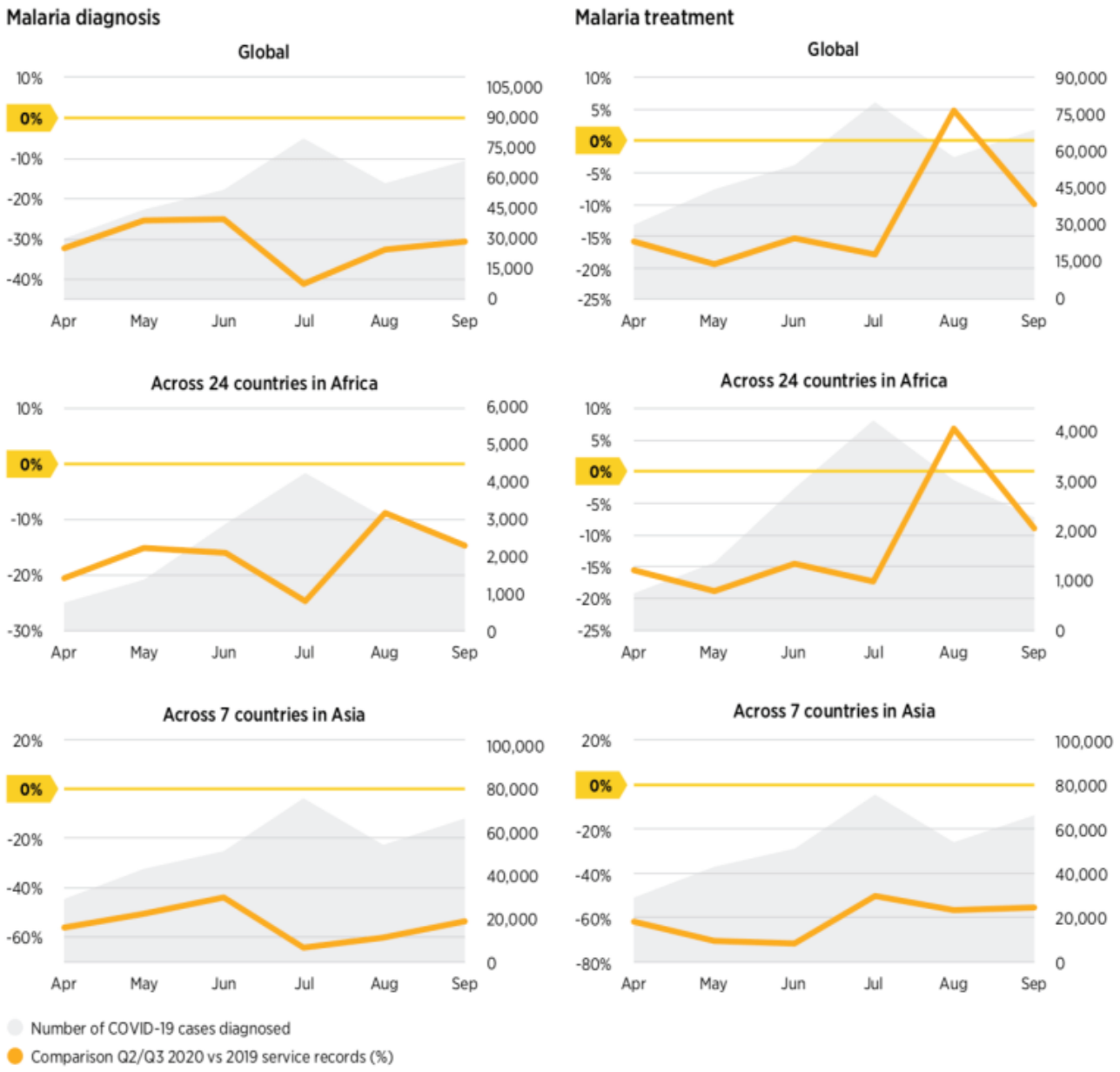


Fig. 3 Impact of COVID-19 on malaria diagnosis (left) and treatment (right)

***Source**:* Adapted from **The Global Fund** (2021), The Impact of COVID-19 on HIV, TB and Malaria Services and Systems for Health: A Snapshot from 502 Health Facilities Across Africa and Asia

The target population comprised approximately 1,500 permanent staff members employed at Katutura State Hospital. Participants were selected through purposive sampling; a non-probability sampling technique commonly used in qualitative research to identify individuals who possess relevant knowledge and experience related to the research topic. The use of purposive sampling enabled the researcher to obtain rich and detailed information from participants who were directly involved in healthcare service delivery during the COVID-19 pandemic.

The study aimed to interview 20 respondents from a variety of departments, including the Office of the Permanent Secretary, Human Resources, Financial Unit, Doctors, Nurses, Emergency Unit, Outpatient Ward, Maternity Ward, Radiology, Pharmacy, Paramedics, Patients, and Hospital Housekeepers. Purposive sampling was used to select participants. Purposive sampling is a strategy commonly used in qualitative research to locate persons with relevant knowledge and expertise about the topic under study. The sampling method allowed the researcher to carefully pick healthcare professionals and staff members from Katutura State Hospital, including doctors, nurses, and other individuals who were directly involved in healthcare service delivery during the COVID-19 pandemic. These participants were considered appropriate sources of information because of their firsthand experiences and understanding of the challenges that affected healthcare services during the pandemic.

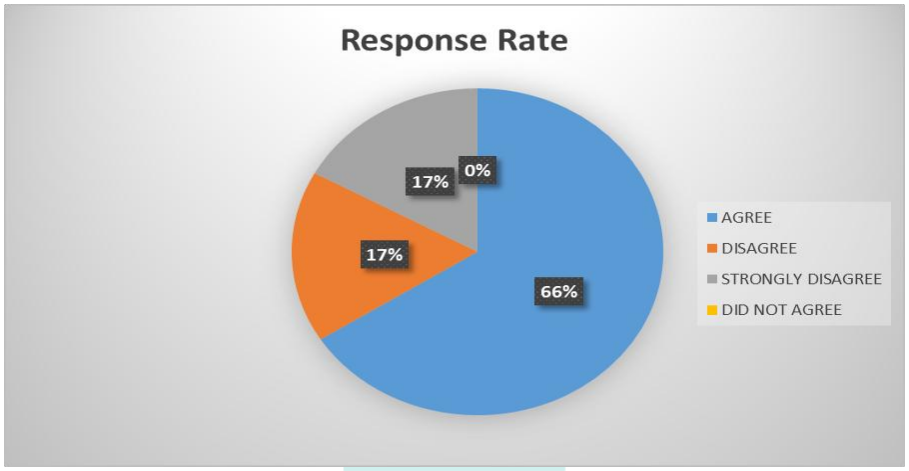
To increase the depth and complexity of the data, the study used a variety of data collection procedures within the qualitative research framework. In qualitative investigations, the researcher is the primary data collector and interpreter (Yin, 2014). As a result, data were gathered through semi-structured interviews guided by open-ended questions intended to elicit participants' experiences, attitudes, and perspectives on healthcare service delivery and the influence of COVID-19. The flexible nature of semi-structured interviews allowed participants to provide detailed responses while enabling the researcher to probe for further clarification where necessary.

The study also employed key informant interviews to obtain insights from participants occupying strategic positions within the hospital and possessing specialised knowledge relevant to the research objectives. In addition, document analysis was used to supplement the interview data. According to Goddard and Melville (2004), document analysis provides valuable contextual information and assists researchers in gaining a broader understanding of the subject under investigation. The combination of semi-structured interviews, key informant interviews, and document analysis facilitated data triangulation and contributed to the credibility and trustworthiness of the study findings.

RESULTS

Data analysis is vital in research because it makes studying data much easier and more accurate. It enables researchers to evaluate data in an easy manner, ensuring that no information is overlooked that could aid in the extraction of insights. This study includes a data analysis of the results, together with respondents' interpretations. The study used both telephone and contact interviews to analyse the impact of COVID-19 on care delivery at Katutura State Hospital. The research utilised descriptive statistics to describe the dataset. Twenty participants responded. 12 males and 8 females were chosen at random; and all participants were Katutura state hospital employees, with four doctors, ten nurses, and six labourers employed by the ministry. Respondents were given a choice of how they wanted to participate in the study. Qualitative data analysis occurred concurrently with data collection, allowing researchers to develop an understanding of the phenomenon under question. The iterative process of data collection, and analysis resulted in no new categories or themes emerging. That indicated that the data was saturated. The researcher established a database to generate findings, which translated raw data into fresh information. This was accomplished by actively participating in the analysis processes across all phases of the research effort.

Response Rate by Participants



Major Impact of the Virus (COVID-19) on service delivery in Katutura state hospital

Respondents confirmed that the Corona Virus Pandemic (COVID-19) severely impacted hospital service delivery, particularly in the pharmacy sector. The virus outbreak forced the country to go into complete lockdown, resulting in the closure of suppliers and stakeholders, causing activities such as medicine distribution, food delivery, patient visits, and new admissions to be postponed or cancelled. Even though the lockdown remained in effect, state hospitals were among the first to implement tight lockdown limitations to prevent the virus from interfering with patient and staff treatment. Social distancing improved prevention efforts and proved to be beneficial to the hospital, not only during lockdowns, but also in the future, as the lockdown shaped the hospital's pandemic risk preparedness. Not only were interior deliveries cancelled, but also exterior service deliveries, to facilities such as mobile hospitals and remote communal areas like farms, were also been suspended.

"*the pandemic has affected medicine suppliers which directly affect the service rendered to our patients during that time'' "it was not business as usual; we have to reduce the patients' number daily to maintain social distances in the hospital" "at some point is was very scary to give effective service to our patients because we were afraid to get in close contact with patients particularly the covid -19 patients"*

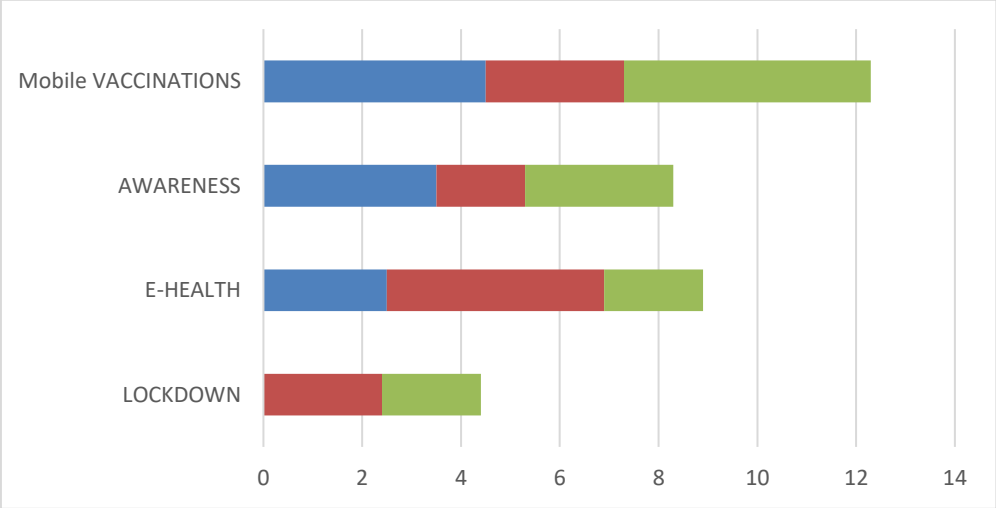
The Namibian government attempted to improve service delivery at Katutura State Hospital by implementing a Public Service Management System, which resulted in the creation of a mobile hospital just for COVID-19 patients. The Public Service of Namibia developed and implemented a Performance Management System after Cabinet approval in August 2011. Since then, the PMS has been established as a business process for competency in the Public Service. Although the PMS was intended to be a strategic operational tool for managing organisational, individual, and team performance to achieve organisational goals, as well as a primary vehicle for implementing government initiatives, the government determined that a review of the PMS processes was required to improve accountability and the performance culture in the

Public Service. Considering the foregoing, the following initiatives were implemented to ensure service delivery during COVID-19.
Vaccination Centres were established in Windhoek to render vaccine services to people, these are:

1. Katutura Intermediate State Hospital and
2. Windhoek Central Hospital

"we take the medical services to the people, here I mean we make field awareness and mobile vaccination centres outside the hospital"
"We limited the visiting of patients; this was one of the best strategies to ensure our service delivery remain efficient"
"the hospital makes use of e -health services to trace and record the patients, e -health system saves time and expenses of patients by making it easy to communicate with them before they come to the hospital"

The COVID-19 pandemic spread over the world, requiring people to maintain social distancing. It significantly impacted the service delivery industry, which is a major concern for Namibia's economic future. Modern problems necessitate modern solutions; and in response to the growing number of COVID-19 infected people, the Namibian government sought to implement E-Health, a method in which patients could interact with their health workers without having to physically visit hospitals. The strategies used are depicted below:



Barriers encountered during COVID 19 pandemic at Katutura Hospital

Respondents stressed that one of the major barriers they faced during covid -19 pandemic was the wearing of PPE in executing their duties.

"There are some PPEs, which come with a zip closure, and their quality is so bad that it rips apart when I wear them. Also, we get different size of head caps and it is very loose which exposes us and hinders our vision while working"
"I sweat a lot while continuously wearing it for hours, specially working while standing".

The other barrier encountered by respondents was telemedicine while requesting external service deliveries. The coronavirus disease 2019 (COVID-19) pandemic resulted in an unprecedented international emergency, necessitating the adaptation of existing healthcare systems to ensure continuous patient care, despite the current interruptions. Telemedicine may have been a viable option to maintain hospital workflow, however there were challenges to its deployment:

"Other barriers relate to the utilisation of paper-based medical records and investigation ordering systems, which rely on patients being present in the hospital. Junior doctors were shown to be more apprehensive about using telemedicine and would require intensive training, support, and supervision. The government needs to heed results of such studies to develop strategies to implement relevant intervention plans

DISCUSSION

The findings of this study indicate that the COVID-19 pandemic had a significant impact on healthcare service delivery at Katutura State Hospital. Participants reported that several essential aspects of service delivery were disrupted during the pandemic, resulting in challenges for both healthcare providers and patients. Among the most frequently identified concerns were communication difficulties, inadequate support systems, limited access to information, shortages of essential resources, and the psychological strain associated with the pandemic environment. These challenges affected the quality and efficiency of healthcare services and influenced patients' experiences of care.

The study further revealed that communication between healthcare providers and patients was often compromised during the pandemic. Respondents reported difficulties obtaining timely information regarding available services,

treatment procedures, and changes in hospital operations. Such communication gaps contributed to uncertainty among patients and may have affected their ability to make informed healthcare decisions. Effective communication is a critical component of healthcare service delivery, particularly during public health emergencies when rapid changes in service provision are common.

The findings are consistent with previous studies that identified personal protective equipment requirements, staffing shortages, infection prevention measures, and emotional stress as significant barriers to healthcare delivery during pandemic situations. The need to adhere to strict infection-control protocols altered routine healthcare practices and increased the workload of healthcare professionals. While interventions such as mobile healthcare services and e-health technologies helped to maintain essential services, participants indicated that these strategies were not always sufficient to address the broader challenges experienced during the pandemic.

Another important finding relates to the emotional and psychological burden placed on healthcare workers. Participants described increased levels of stress, anxiety, fatigue, and burnout resulting from extended working hours, high patient volumes, and concerns about personal safety as issues they had to deal with during the pandemic. The unpredictable nature of the pandemic, coupled with limited information on the virus during its early stages, created uncertainty among healthcare workers and the public. These circumstances affected staff morale and presented additional challenges for maintaining effective healthcare service delivery.

The study also highlights the importance of patient-centred care during health emergencies. Participants emphasised the need to address not only patients' medical needs but also their emotional, social, and psychological well-being. Efforts to provide comfort, maintain privacy, support spiritual needs, and facilitate access to counselling services were regarded as important components of quality healthcare. Such interventions helped to mitigate some of the negative effects associated with isolation, restricted visitation, and heightened anxiety during the pandemic.

The findings contribute to the limited body of empirical evidence on healthcare service delivery during the COVID-19 pandemic in Namibia. They demonstrate that while healthcare institutions adopted innovative strategies to sustain service provision, significant challenges remained. The experiences reported by participants suggest the need for stronger communication systems, improved resource allocation, enhanced staff support programmes, and greater investment in digital health technologies to strengthen the resilience of healthcare services during future public health emergencies.

Overall, the study highlights the importance of developing healthcare systems that are capable of maintaining essential services while responding effectively to crisis situations. Strengthening preparedness measures, supporting healthcare workers, and promoting patient-centred approaches would be critical for improving healthcare service delivery in both pandemic and post-pandemic environments.

RECOMMENDATIONS

Based on the findings of this study, several recommendations are proposed to enhance healthcare service delivery and strengthen preparedness for future public health emergencies at Katutura State Hospital.

- Effective communication should be prioritised throughout all stages of a public health crisis. Healthcare institutions should ensure that patients, staff, and other stakeholders receive timely, accurate, and consistent information regarding service availability, operational changes, and emergency response measures. Regular communication can reduce uncertainty, improve patient confidence, and minimise unnecessary hospital visits and enquiries.
- To improve communication and service coordination, hospital management should collaborate closely with communication specialists to develop and implement a comprehensive service delivery communication strategy. This strategy should clearly outline how emergency situations affect healthcare operations, the measures being implemented to address disruptions, and the expected timelines for service restoration where applicable.
- The hospital should also establish a centralised patient information and support system that provides reliable and up-to-date information on healthcare services, treatment procedures, and emergency protocols. Digital platforms and e-health technologies can be utilised to disseminate information efficiently, respond to patient enquiries, and facilitate communication between healthcare providers and patients.
- In addition, management should develop operational guidelines and contingency plans to support healthcare workers during emergencies. These guidelines should provide clear instructions on service continuity, infection prevention measures, resource allocation, and emergency response procedures. Regular training and simulation exercises should be conducted to ensure that staff members are adequately prepared to respond to future health crises.
- The study further recommends expanding the use of digital health technologies, including electronic health records, telemedicine platforms, and mobile health applications. Such technologies can improve patient access to healthcare services, enhance communication, reduce unnecessary physical visits to healthcare facilities, and support continuity of care during periods of restricted movement.
- Finally, healthcare institutions should strengthen their use of social media and other digital communication channels to provide public health information, issue service updates, and engage with patients proactively. Effective utilisation of these platforms could improve public awareness, support health promotion initiatives, and facilitate rapid dissemination of information during emergencies.

- The implementation of these recommendations may contribute to improved healthcare service delivery, enhanced patient satisfaction, and increased institutional resilience in response to future public health challenges.

CONCLUSION

This paper examined the impact of the COVID-19 pandemic on healthcare service delivery at Katutura State Hospital. The findings revealed that the pandemic significantly disrupted the provision of healthcare services, affecting both healthcare workers and patients. Key challenges identified included shortages of essential medical supplies, communication barriers, increased workload pressures, restrictions on patient movement, difficulties associated with the use of personal protective equipment (PPE), and psychological stress experienced by healthcare personnel.

Despite these challenges, the hospital implemented several adaptive strategies to maintain service delivery during the pandemic. These included the establishment of vaccination centres, the use of mobile healthcare services, the adoption of e-health technologies, and the implementation of infection prevention and control measures. While these interventions contributed to the continuity of healthcare services, participants indicated that operational and resource-related challenges continued to affect the quality and efficiency of service delivery.

The paper further highlights the importance of effective communication, adequate resource allocation, staff support mechanisms, and digital health innovations in strengthening healthcare service delivery during public health emergencies. The experiences of healthcare workers at Katutura State Hospital demonstrates the need for resilient healthcare systems that are capable of responding effectively to future crises while maintaining essential healthcare services.

The use of a qualitative research approach provided valuable insights into the experiences and perceptions of healthcare workers regarding service delivery during the COVID-19 pandemic. The findings contribute to the growing body of knowledge on healthcare service delivery in crisis situations and provide evidence that can inform policy development, healthcare planning, and emergency preparedness initiatives in Namibia.

In conclusion, although the COVID-19 pandemic posed significant challenges to healthcare service delivery at Katutura State Hospital, the adaptive measures implemented by the hospital helped to sustain essential services. Strengthening healthcare infrastructure, improving emergency preparedness, investing in digital health systems, and supporting healthcare workers would be critical for enhancing the resilience and effectiveness of healthcare services in future public health emergencies.

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