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# EFFECTIVENESS OF COVID-19 CONTROL MEASURES ON HEALTH CARE SERVICE DELIVERY IN JUBBALAND STATE OF SOMALIA

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## ABSTRACT

*There exists scanty empirical evidence that relates COVID-19 control measures and healthcare service delivery. Although the government of Somalia committed an estimated $5 million at the height of the pandemic as a healthcare response fund, its effects are yet to be estimated. As such, there is limited information on the extent that COVID-19-related restrictions imposed affected the delivery and operationalization of the healthcare sector. This research estimated the impact of different factors on the delivery of healthcare services in the region of Jubaland in Somalia. These factors included funding from donors, medical remittances, availability of healthcare facilities, and access to medical professionals. The study was based on two theories, namely the Agency Theory and the Theory of Planned Behavior (TPB). To gather data, a descriptive survey method was used, and a sample size of 185 was chosen from a population of 1850. Semi-structured questionnaires and interviews were conducted with respondents and key informants, and the collected data were analyzed using both descriptive and inferential techniques. This study used descriptive statistics like percentages, means and standard deviations in summarizing and relating variables from administered questionnaires. The software enhanced data accuracy by utilizing multiple regression analysis to evaluate how COVID-19 control measures affect healthcare delivery. The qualitative data was examined through content analysis. The study concluded that the effectiveness of covid-19 control measures significantly affected the healthcare service delivery in Jubba land state of Somalia; donor funding, medical remittances, access to health facilities during the lock and access to medical professionals affected the healthcare service delivery in Jubba land state of Somalia. The study recommended improvement of the effectiveness of preventive control measures to enforce better health care service delivery.*

***Key Words:*** *Donor Funding, Health Care Service Delivery, Medical Remittances, Medical Professionals, Jubbaland, Somalia.*

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## INTRODUCTION

In December 2019, the first occurrence of COVID-19 was identified in Wuhan, China, and subsequently, it spread to various regions globally. On January 30, 2020, the Emergency Committee, created by the Director-General of the World Health Organization (WHO) according to the International Health Laws (2005), categorized the COVID-19 outbreak as a matter of global public health concern. To stop transmitters and equip their health system to handle the pandemic, nations have put strict remediation measures in place. The measures taken to control the spread of COVID-19 have caused adverse effects on healthcare systems, economies, and other sectors around the world. Low-income countries have been particularly impacted, according to Hale et al. (2020).

Over one million people died from COVID-19 by October 2020, with the majority of cases occurring in the United States, India, and Brazil. Numerous nations that were relatively unaffected by the "first wave" of cases encountered sharp increases in cases Global health experts had previously warned that outbreaks of COVID-19 in low- and middle-income settings (LMIS) could be catastrophic due to poor accessibility, insufficient capacity, and difficult accessibility to healthcare facilities; even so, confirmed caseloads all across Africa have remained comparatively low, including in Somalia (WHO, 2021).

To prevent the virus from propagating further, the WHO originally advised that nations implement lockdown procedures, ensure social seclusion, and urge their citizens to stay at home and use hand hygiene. Without thorough models of their effects, the majority of African nations adopted these measures. In several sub-Saharan African nations, the lockdown prevented the spread of the disease through social contact, but at a high cost to the economy and the health system. Due to a variety of issues, including inadequate facilities and numerous illnesses such as HIV/AIDS, tuberculosis (TB), malaria, and various others posing a significant burden., baltic states were especially vulnerable (Haideer, 2020).

The first COVID-19 outbreak in Nigeria occurred on February 27, 2020, as a result of an Italian businessman visiting the nation. The declaration of this index case prompted the Nigerian government to take action, with the support of the necessary health organizations, to stop the disease's spread. Despite the Nigerian government's efforts to control the epidemic, the disease had still managed to spread to 36 states as of April 30, 2020, resulting in 1,932 confirmed cases, 319 discharged cases, and 58 fatalities. This is a remarkable situation.With few health centers available to combat the disease, controlling this rise in COVID-19 in the nation was particularly difficult and thus cause for concern. (Ogbuinya, Ngwakwe, Ngwakwe, Afoke, Aleke, Amari, Nwankwo, and Nwankwo 2021).

Kenya's government implemented several pandemic response plans. Border restrictions and prohibitions of foreign travel, with cargo exceptions, the closure of educational facilities, restrictions of public gatherings, night movement prohibitions, the closure of religious spaces, eateries, and the observance of physical distancing (1.5 m) in crowded public areas are some of these. In June 2020, the country started gradually removing the restrictions. Furthermore to the aforementioned, Kenya has also implemented non-pharmacological interventions like testing, investigations, isolation, and therapeutic interventions, as well as the universal requirement that everyone wear a face mask in public areas, advisory on cough and regular hand washing and sanitization. Kenya is one of the African nations that was thought to have balanced the costs and benefits of the initiatives by adopting modest rather than increasingly rigorous measures. For instance, Kenya chose to impose a curfew from dawn to dusk and movement was restricted only in counties considered epidemic spots, while other nations imposed strict lockdowns. Non- pharmacological interventions aim to maintain the ability of the healthcare system to meet the needs of the population by leveling the epidemiological curve by slowing the virus's propagation. (Barasa, Kabia, Kasera Kazungu, Ogero, and Orangi 2021).

At the height of the pandemic, Somalia has committed up to 5 million U.S. dollars toward healthcare financing to build and renovate government hospital facilities. The majority of COVID-19 testing, which takes

place in the major urban centers, is limited to suspected cases due to the lack of current facilities, which likely underestimates the burden of diseases. Limited testing capabilities, which are made worse in fragile and conflict-affected countries like Somalia, are largely to blame for the low case numbers in LMIS. However, some scholars claim that because of the quick government responses such as limited cross-border travel, sparse urbanization, and a youthful population in LMIS, the rates of infection remained relatively low. This is because morbidity and mortality rates are higher in older age groups (Heritage Institute, 2020).

Information on the current state of the flu epidemic in Somalia has been scanty due to access problems, including those caused by COVID-19-related constraints and the continuing, complicated humanitarian emergency. From March to October 2020, the percentage of declared positive tests remained largely stable. However, the WHO data present a nuanced picture of the country as a whole, making conclusions difficult. In a challenging environment, Somali officials quickly and severely limited the pandemic's spread. A crisis response committee and an incident management system were set up by the Federal Government as soon as Somalia discovered its first COVID-19 cases on March 16, 2020. When the pandemic first started, Screening began with temperature checks at airports and suspected cases were kept in isolation because Somalia lacked the laboratory capacity to diagnose the illness. A multisectoral emergency task force was formed by the Ministry of Health, which also stationed medical personnel at airports and set up isolation facilities for travellers from high-risk nations (Alwan, 2020). It was against this background that this study sought to explore the effect of covid-19, control measures effectiveness on health care service delivery in Jubbaland state of Somalia.

**Statement of the Problem**

Despite the existence of some research on the impact of the pandemic on the overall socio-economic welfare, few studies have been conducted to examine how COVID control measures have affected the provision of healthcare services. Tumwesigye, Denis, Kaakyo, and Biribawa (2021) investigated the influence of the COVID-19 outbreak on health services and countermeasures in Uganda and discovered that between March and April 2020, there was a decrease in the utilization of health services, which later improved in June or July. Overall OPD decreased by 17%, malaria-OPD by 7%, ANC by 8%, immunization by 10%, hypertension by 17%, and diabetes by 10%. In the same time frame, institutional mortality decreased. The intervention had a significant impact on the incidence and distribution of malaria-OPD and immunization, as evidenced by the research on curfews, livelihoods, and health conducted by Braam et al. Meanwhile, a virtual qualitative study carried out in Baidoa and Mogadishu, Somalia revealed that many individuals and households reported experiencing COVID-19 symptoms, illness, and community spread. The study focused on the impact of COVID-19 and typical health responses among populations affected by conflict. As might be expected, those who tested positive for the disease and their health was negatively impacted were continuously cautious in their responses to the pandemic. Even so, in line with a global trend, after the lockdown was lifted in August 2021, there was an increase in public opposition to policies like face masks and social seclusion.

In their research examined the effects of COVID-19 in Kenya, Odhiambo and Okongo (2020) observed that the curfew and shutdown within the international supply chains, which resulted in a shortage of foreign currency, put pressure on the Kenyan shilling. For illustration, a lack of exports has made the Kenyan shilling highly susceptible, causing it to lose 5% of its valuation since March 2020 began. Even though the above studies focused on COVID-19 they did not consider the variables that are under investigation in this present study, therefore, causing a conceptual framework. Therefore, this research bridged that gap by evaluating the influence of donor funding, medical remittances, access to healthcare facilities and access to a medical professional on healthcare service delivery in the Jubba land state of Somalia.

**Objectives of the Study**

The study was premised on the following objectives;

- To examine the effect of donor funding on health care service delivery in the Jubba land state of Somalia.
- To establish the effect of medical remittances on health care service delivery in the Jubba land state of Somalia.
- To determine how access to health facilities during the lockdown affected health care service delivery in Jubbaland state of Somalia.
- To assess how access to medical professionals affected the health care service delivery in Jubbaland state of Somalia.

The study attempted to answer the following research questions

- How does donor funding affect health care service delivery in the Jubbaland state of Somalia?
- In what ways do medical remittances affect health care service delivery in the Jubbaland state of Somalia?
- How does access to health facilities during the lock down affect healthcare service delivery in the Jubba land state of Somalia?
- How has access to medical professionals affected the health care service delivery in the Jubbaland state of Somalia?

## LITERATURE REVIEW

### Healthcare Service Delivery

Every medical facility around the world is currently unavailable and incapable of providing healthcare services that satisfy the changing health requirements and high expectations of the well-informed global population. A third of the global populace does not have proper access to healthcare services. In the delivery of services about health to everyone on the planet, health facilities and their administration must adapt to the challenges posed by a changing environment, an ever-increasing population, and public expectations for the provision of high-quality, affordable healthcare. There are many reasons why people living in developing nations often cannot access healthcare services. These reasons include poverty, low levels of education, high unemployment rates, lack of health insurance coverage, insufficient healthcare facilities and staff, centralized primary healthcare services, centralized management of healthcare facilities, and a growing population. This is a common view held by many experts in the field, as noted by Halfdan and Carl in 1978.

According to WHO's report from 2008, a significant number of African citizens are unable to access healthcare or afford the costs associated with it. To address this issue, healthcare services should prioritize low-cost delivery, coordinated care treatment, decentralized management of health facilities, and the availability of trained healthcare providers. The accessibility of primary, secondary, and tertiary healthcare, as well as public health services, should be promoted using reliable and publicly accepted methods and technology to ensure universal access to healthcare.

Decentralization of healthcare management in Kenya is crucial to improve decision-making processes, planning, coordination, budgeting, and effective healthcare delivery, according to studies such as Noor et al. (2006) and Mwabu et al. (1993). A centralized healthcare system may result in a poor distribution of services, insensitivity, incompetence, and imbalance, as noted by Ndavi et al. (1998). Therefore, the transfer of healthcare service delivery from the national government to the county government, as done on August 9th, 2013, aims to increase access to healthcare services. Devolved healthcare management promotes accessibility, social accountability, participatory planning, coordination, and transparency of services, as explained by Bossert (1998). Access to healthcare services should be safe, appropriate, effective, efficient, affordable, and

patient-centered, but challenges that hinder accessibility must be promptly addressed by the relevant department, as recommended by Corrigan et al. (2001).

**Donor Funding and Health Care Service Delivery**

African Development Bank study from 2013 entitled Donor Approaches to Service Delivery in the Fragile States. Program evaluations were employed in the study to comprehend the challenges and achievements that are frequently encountered when working with fragile states. The research also aimed to highlight the ways that service delivery in fragile states might support economic development by integrating these experiences into the body of knowledge already available in fragile states. The investigations identified several recurring operational issues, including personnel, interacting with local populations, and connecting with other donors and government organizations. Even though these issues have been acknowledged, evaluation reports revealed persistent confusion over how to resolve them. Although these problems are not specific to weak nations, they are exacerbated and frequently grow more difficult in such circumstances.

In 2017, Gautier and Ridde investigated Health finance policies in Sub-Saharan Africa. They assessed whether healthcare services were controlled by the government or donors. A review of English and French literature published between January 2001 and December 2015 focused on examining the extent to which the government influences policy decisions related to achieving universal health coverage (UHC) in the southern Sahara region. The majority of articles (24/35) had contradictory findings regarding government ownership (i.e., certain layers of the policymaking process had ownership recognized, but not all). Throughout the various stages of policy development that were being evaluated, only the creators of five papers presented evidence of ownership. It was observed that in cases where the five stages lacked government ownership, the role of donors was not consistently evident. Instead, other actors' involvement, such as the private sector, was undercutting government-owned decision-making. Additionally, we discovered proof that government ownership and donor influence can exist side-by-side in harmony.

In Kenya, Barasa et al. (2021) looked at domestic and foreign funding for primary healthcare in low-income nations. investigating health facility financing in light of devolution. According to the report, Making a plan and a budget: Hospitals and health centres did not have uniform planning and budgeting procedures throughout counties. Budgets were neither transparent nor reliable; rather, they were seen as "wish lists" because they did not correspond to available funds. Funding sources: While health organizations mostly relied on donations, public hospitals relied on user fees. Hospitals in four of the five study counties lacked financial independence. All of the research counties have financially independent health centres. All of the studied counties had unpredictable funding flows to hospitals and health facilities in terms of both timing and volume. Healthcare facility costs: Over 80% of the money spent by the health centre went toward paying the staff. This made it difficult to pay for other expenses and caused repeated stockouts of crucial healthcare supplies.

**Medical Remittances and Health Care Service Delivery**

According to research by Durante, Pozo, and Sainz (2007), receiving remittances causes healthcare costs in Mexico to increase. Due to the increased cost of these medical services, hospitalization expenses show the most relation to remittance income received by the household. However, households with higher remittance inflows also incur much higher primary care costs, allocating betwixt 5 and 9% of remittance payments to primary care services. Remittance money can take up an important policy capacity in partially funding the healthcare costs of migrants' families back home, to the degree that primary care expenses will probably have large impacts on health outcomes given their preventative nature. Our data also show how remittance income differs from other income streams in its effect on health expenditures. In particular, while increasing, the impact of non-remittance remuneration increase on household healthcare costs is much less significant than the effects of remittances.

Awojobi (2019) evaluated the effect of remittances on medical spending and utilization in poor nations. An organized web search for pertinent papers published between 2002 and 2018 was performed. The findings

showed that seven (7) out of the 135 studies were electronically searched for the study's inclusion criteria. Remittances enhanced healthcare access, utilization, and spending, according to research done in the African, Asian, European, and Latin American continents. Except Armenia, where remittances dramatically increased healthcare utilization, the extent of these consequences was, however, restricted across all studies. Although remittances cannot replace formal healthcare insurance plans, they can be used as a temporary solution to reduce the cost of healthcare in underdeveloped nations. Governments at all levels must develop health policies that support providing all citizens with universal access to healthcare.

**Access to Healthcare Centres and Healthcare Service Delivery**

According to Iteba Obrist and Lengeler et al. (2008), governments should work to ensure that everyone has access to high-quality healthcare because it is a fundamental human right. The possibility of reduced access to healthcare and worse health outcomes compared to the general population may be a characteristic of vulnerable populations. It is possible to learn about the access and satisfaction of vulnerable groups to healthcare services by assessing their personal experiences. Through several frameworks, several authors have attempted to communicate the complexity and multifaceted nature of health care access. The comprehensiveness of these frameworks, like the Health Access Livelihood Framework (HALF) mentioned below, recognizes a vibrant connection between supply and demand. For example, an accessible service will make an effort to coordinate supply (operational hours) with users' schedules (demand).

In a low-resource urban setting in the Western Cape, South Africa, Scheffler, Schneider, and Visagie (2015) did a study on the effects of health service characteristics on healthcare access. It was done using a descriptive qualitative study design. Semi-structured interviews with individuals who had been randomly selected for the study were used to gather data, which were then analyzed using thematic content analysis. According to the study's conclusions, service delivery factors are provided about the access Framework's five access dimensions. When compared to the District Health System's policies and guidelines, the way care was organized in the research environment produced available, accessible, inexpensive, and acceptable services. However, there were substantial obstacles that service providers had to overcome to deliver services, which had an impact on the standard of care, decreased client and provider satisfaction, and in the end, jeopardized the acceptability of service delivery. While services were deemed accessible by users, their organization caused issues in terms of availability, affordability, and sufficiency. As a result, users' needs were left unfulfilled, satisfaction levels were low, and trust diminished. These difficulties contributed to impressions of poor services.

Aldersey, Dassah, and Davison (2018) conducted a “best-fit” framework synthesis of factors influencing access to primary healthcare services for people with disabilities in rural locations. According to the study, barriers to PHC access for people with disabilities included the interaction of four key factors: availability, acceptability, geography, and affordability. Particularly, individuals in need of medical treatment frequently had to travel for care due to insufficient medical facilities and services and the perceived poor quality of care. Transport issues made the geographical distance barrier worse. We also brought to light the fact that if the health services and facilities were offered, the majority would be unable to afford them.

Otieno et al. (2020) investigated the availability of primary healthcare services and related characteristics in Nairobi, Kenya's urban slums. According to the study, access to primary healthcare is essential for implementing Kenya's policy of universal health coverage. However, establishing primary care in settings with limited resources in metropolitan areas has shown to be the most difficult due to healthcare disparities. The research examined the accessibility of primary healthcare services and their features in the urban slums of Nairobi, Kenya. It was found that residing in a household headed by a woman, utilizing a public facility for medical care, and personally paying for healthcare expenses are significantly linked to insufficient access to primary care in Nairobi's slum areas. Therefore, to increase access to primary healthcare, the UHC program's

design in this context should place a high priority on measures that invigorate the economic empowerment of women-led households.

**Access to Medical Professionals and Health Care Service Delivery**

In considering the upgrading of the healthcare sector, in the Free State, through the establishment of a provincial intervention model in South Africa, Malakoane et al. (2022) found that: the Free State Department of Health (FSDoH) collaborated and coordinated with the members of the public and other interested parties, using a participatory action method to establish the "Health Systems Governance & Accountability" (HSGA) interventional model. For this paper, we looked at the recorded data that was gathered during standard management procedures. The results showed that the formulation of the FSDoH's Strategic Transformation Plan 2015–2030 was preceded by the completion of the HSGA intervention model before the end of 2013. Focusing on the 6 pillars for strengthening health systems and the vital connections among them, the HSGA intervention model was an instrument used to bring into action and integrate the Plan's programs.

In a low-resource metropolitan context in the province of the Western Cape in the Republic of South Africa, Scheffler Schneider and Visagie (2015) researched the impacts of health service characteristics on healthcare access. This study investigated how service delivery affects vulnerable populations' access to primary healthcare in an urban environment in South Africa. It was done using a descriptive qualitative study design. Semi-structured interviews with individuals who had been randomly selected for the study were used to gather data, which were then examined using thematic content analysis. It was evident through the findings that the ACCESS Framework's five access dimensions are presented against the service delivery factors. When compared to the District Health System's policies and guidelines, the way care was organized in the research environment produced available, accessible, inexpensive, and acceptable services. However, there were substantial obstacles that service providers had to overcome to deliver services, which had an impact on the standard of care, and decreased the level of satisfaction for both client and provider which in the end, jeopardized the service delivery acceptability. Even though healthcare services were accessible to users, how they were organized created problems for them in the areas of availability, affordability, and sufficiency, leading to needs that weren't being met, low levels of satisfaction, and a decline in trust. These difficulties contributed to impressions of poor services.

Wairiuko (2014) looked at the factors influencing older patients' access to healthcare in Kenya. The informal settlement of Kibera in Nairobi County, Kenya. According to the research's findings, 40.4% of older people can access healthcare services. Affordability was not a problem, but service acceptance and availability were. Access was correlated with demographic parameters such as marital status, home type, and educational attainment. Access was influenced by sociocultural elements like satisfaction with family support for getting medical care, desired location, and preferred gender of health worker. Access was significantly influenced by institutional variables like satisfaction with the facility's services, level of contentment with the healthcare professional delivering the services, the services rendered by Community Health Workers (CHWs), proximity to the health centre, the category of the facility, the presence of medical equipment in the health centre, and the accessibility of medications.

**Theoretical Framework**

**The Theory of Planned Behavior (TPB)**

Icek Ajzen created the Theory of Planned Behavior (TPB) to forecast behavioural patterns in people (Ajzen, 1991). According to the Theory, intentions to engage in healthy behaviours can be used to anticipate those behaviours. Intentions refer to the conscious decision to carry out conduct before putting it into practice. These intentions are then influenced by three factors: a) attitudes toward the behaviour and whether people believe it to be important, useful, or desirable; b) the social norms they believe to be prevalent in their immediate environment; and c) the degree of control people believe they have over their actions. The TPB contends that attitudes, social norms, and perceived control all have an indirect influence on behaviour

through intentions, which act as the starting point for behaviour. Furthermore, it is proposed that perceived behavioural control influences behaviour both directly and indirectly. People with a high sense of control tackle tough tasks, have a strong commitment to their goals, retain a task focus, persist in the face of failure, and ascribe failure to a lack of effort, similar to self-efficacy in Bandura's social cognitive theory. As a result, one's capacity to do an activity is likely to be facilitated by one's belief in their ability to do so.

The TPB's components can predict general health behaviours, according to evidence from several meta-analyses. The correlations between COVID-19 and several health behaviours, including physical separation, mask use, hand washing, travel intents, and COVID-19 vaccination intentions, have, interestingly, been the subject of multiple studies. In a similar line, Prasetyo and colleagues showed that variables obtained from an extended version of TPB were strongly related to behavioural intention. The research is, however, lacking in studies that emphasize restricting social connections as a healthy activity. The current study addresses this problem.

With regard to handwashing in particular, we would anticipate that intents, attitudes, social norms, and perceived control will be higher than those for limiting social interaction, as the latter is seen as avoidant and unnatural conduct that is more demanding to carry out. Importantly, the current article aims to analyze the dynamics of these two health behaviours in two distinct national settings, namely Belgium and France, because the worldwide situation differs greatly among countries.

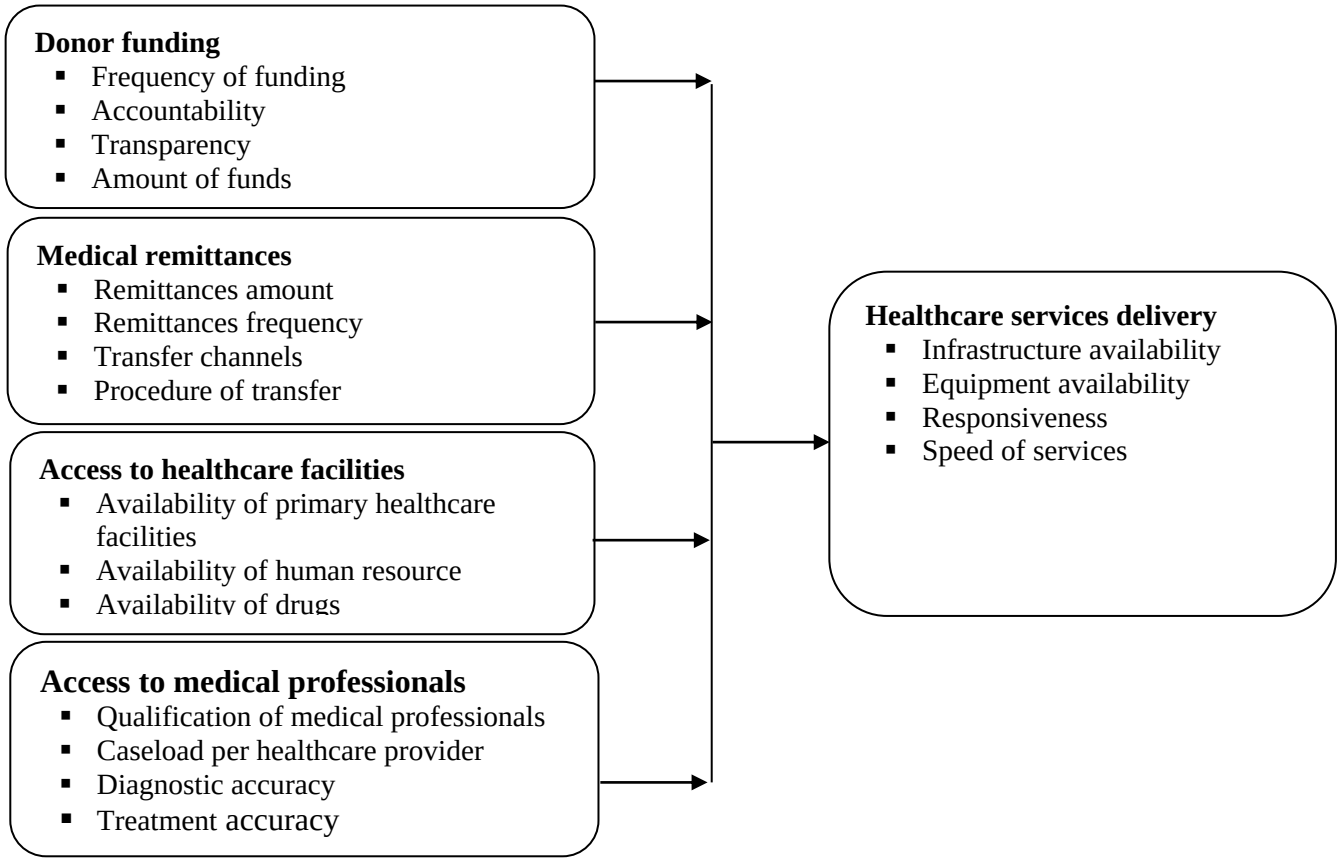
**Agency Theory**

Stephen Ross and Barry Mitnick first put forth the idea of agency theory, which Jensen and Meckling expanded upon in 1976. (Mitnick, 2013). The connection wherein people (the principal) hire other(s) (the agent) to carry out a task on their behalf and transfer the authority to make decisions to the agent is addressed by agency theory. The goal of agency theory is to find solutions to issues that may arise in the relationships between principals, such as shareholders, and their agents, such as company executives. The issues raised by conflicting desires or aims between the principal and agent, the principal's inability to confirm the activities of the agent, and the principal and agent's divergent views of risk are all addressed by agency theory. The principle and agent may have different tendencies to act since they each have varied risk tolerance.

Walker (2003) asserts that the agency theory model is based on the idea that due to information asymmetries and self-interest, principals don't have a reason to trust their chosen agents. To address these concerns, principals will set up systems that will align agents' and principals' interests and limit the potential for information asymmetries and opportunistic dispositions. (Keng'ara, 2013).

In this study's context, the donor might be thought of as the Principal and the receiver or implementing organization as the agent. The donor chooses the amount of money to be dispersed and transfers it to the borrower, who then decides on spending patterns that ultimately result in results like the growth of the economy, development of infrastructure, access to education, and health care. The donor evaluates these results using a formal monitoring and evaluation system and then determines the quantity of financing to affect the actions that the implementing partners take and the results that result (Jensen and Meckling, 1976). This idea aimed to offer a framework for analyzing whether imposing finance requirements strengthened the agency relationship between the donor and the receiver.

**Conceptual Framework**




**Independent Variables** **Dependent Variables**

**Figure 1: Conceptual Framework**
**Source: Researcher (2022)**

## METHODOLOGY

In this study, a descriptive design was employed, as it allowed for the collection of both qualitative and quantitative data, leading to a more extensive dataset. The target population comprised of; Nurses, medical officers, healthcare administrator, laboratory technicians, and community members. The target population was 1850. The respondents were directly involved in healthcare service delivery and were deemed to possess important information that led to the importance of the study. A sample size of 185 was calculated from the target population to represent 10% of the total population. The research study was optimistic that a total of 185 components would adequately serve the population. The research primarily utilized original data, with the researcher employing a questionnaire as the main research tool. The study utilized a questionnaire with close-ended questions. The questionnaire had two parts which focused on the respondent's demographic characteristics and study variables. With the help of SPSS, the study computed descriptive statistics that included proportions and percentages used in summarizing and relating variables from administered questionnaires. The study harnessed content analysis to analyse qualitative data from the questionnaire and key informant interview schedules. The model for this study was illustrated below:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$:

Where:

Y= Healthcare service delivery

$X_1$= Donor funding

$X_2$= Medical remittances

$X_3$= Access to healthcare facilities

$X_4$= Access to medical professionals

$\beta_0$=Regression Constant or Intercept

$\beta_1, \beta_2, \beta_3$ $\beta_4$= coefficients of various independent variables

$\varepsilon$ =error term assumed to be normally distributed with a zero variance.

The analyzed data was presented by the use of charts, graphs, and tables to enhance comprehension, packaging and interpretation of the resultant research findings.

## RESULTS

### Donor Funding

The first goal of the study was to assess how donor funding affected health care service delivery in the Jubba land state of Somalia. The study assessed the extent of donor-availed monies, the existence of accountability frameworks in place to ensure good use of funds, donors have representatives to monitor how funds are used locally, mechanisms in place that ensure the use of money was transparent, periodic updates made on how funds are utilized, the sufficiency of donated amount for operations in the health facilities and termination of the funds according to the needs that have been cited to donors. These findings are presented in the table.

**Table 1: Description of donor funding**

| | Strongly Disagree | | Disagree | | moderately agree | | Agree | | Strongly Agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| The donors avail their monies annually | 6 | 3.3 | 18 | 9.8 | 32 | 17.4 | 103 | 56.0 | 25 | 13.6 |
| There are accountability frameworks in place to ensure good use of funds. | 8 | 4.3 | 14 | 7.6 | 35 | 19.0 | 93 | 50.5 | 34 | 18.5 |
| Donors have representatives who monitor how funds are used locally | 8 | 4.3 | 19 | 10.3 | 28 | 15.2 | 92 | 50.0 | 37 | 20.1 |
| There are mechanisms in place that ensure the use of money was transparent. | 7 | 3.8 | 11 | 6.0 | 24 | 13.0 | 110 | 59.8 | 32 | 17.4 |
| There are periodic updates made on how funds are utilized. | 6 | 3.3 | 9 | 4.9 | 25 | 13.6 | 110 | 59.8 | 34 | 18.5 |
| The amounts donated are sufficient for operations in the health facilities | 21 | 11.4 | 18 | 9.8 | 30 | 16.3 | 91 | 49.5 | 24 | 13.0 |
| The funds are formatted according to the needs that have been cited to donors | 10 | 5.4 | 17 | 9.2 | 26 | 14.1 | 103 | 56.0 | 28 | 15.2 |

Donor funding can play a crucial role in supporting health care service delivery in low-income countries. Donor funding refers to the financial support provided by external organizations, such as international development agencies, foundations, and governments, to support programs or projects in recipient countries (Lawson, 2013). In the context of health care, donor funding can support a range of activities, including the provision of medicines and medical equipment, the training of health care workers, and the construction or renovation of health care facilities (Warren, et al., 2013).

Most participants agreed (56.0%) that the donors availed their money annually which supports the work of Kashif, Faisal Jamal, and Abdur Rehman, (2018). It was further agreed by nearly half of the participants there were accountability frameworks in place which ensured good use of funds (50.5%). There was agreement (50.0%) that donors had representatives who monitored how funds were being used locally. Equally, it was agreed (59.8%) that mechanisms were put into place to ensure integrity which is consistent with Okinda

(2013). There was agreement that the donor-funded program maintained periodic updates on how funds were utilized (59.8%). It was noted that the amounts donated were sufficient for operations in the health facilities though not by the majority as only 49.5% agreed with the claim. Finally, on this subject, the study found funds are termated according to the needs that have been cited to donors (56.0%), a finding which supports the work of Mathur, Hong, Ojo & Merion, 2017)

Donor funding can have a significant impact on healthcare service delivery in low-income countries (Fryatt, Mills & Nordstrom, 2010). Donor funding can support a range of activities, including the provision of medicines and medical equipment, training of healthcare workers, and the construction or renovation of healthcare facilities.

Examining the ways the donor funding had improved service delivery, the study found The funding enhanced the ability to obtain healthcare facilities while promoting effective health care services, improving amenities provided by the hospital, facilitation of staff in the provision of services, improvement of facilities. It also, facilitated the smooth flow of health services continuity and without it, nothing can move and promotion and maintenance of health and well-being. Table 2 showed the perceived rating of donor funding's effect on health service delivery.

**Table 2: Donor funding affect health service delivery**

| | | n | % |
|---|---|---|---|
| **To what extent does donor funding affect health service delivery** | Large extent | 53 | 28.8 |
| | Moderate | 115 | 62.5 |
| | Small | 16 | 8.7 |
| | Total | 184 | 100.0 |

The study found that most participants perceived the extent to which donor funding affected health service delivery to be moderate (62.8%).

Examining other ways in which bureaucratic practices can influence health care service delivery in Jubbaland state of Somalia includes increasing staff skills through training, improving the facilities, and monitoring the services delivered to ensure they are of good and satisfactory quality. Also, the promotion of ethical practices such as transparency and integrity among the management of the medical care facilities. Respondents also felt that there was a need to improve monitoring and evaluation practices to improve service delivery.

**Association between Donor funding and Healthcare Service delivery**

Donor funding can have a significant impact on healthcare service delivery by increasing access to healthcare services, improving the quality of care, supporting healthcare infrastructure investment, building capacity, and responding to emergencies and epidemics.

**Table 3: Association between Donor funding and Healthcare Service delivery**

**Correlations**

| | | Donor funding | Healthcare Service delivery |
|---|---|---|---|
| Donor funding | Pearson Correlation | 1 | .662** |
| | Sig. (2-tailed) | | .000 |
| | N | 184 | 184 |
| Healthcare Service delivery | Pearson Correlation | .662** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 184 | 184 |

**. Correlation is significant at the 0.01 level (2-tailed).

The study found the donor funding had a significant effect on healthcare Service delivery at α=0.05. The relations between donor funding and healthcare Service delivery is implied by r=0.662. The value of the coefficient implies a positive significant relationship between donor funding (x) and healthcare Service delivery in Jubba land state of Somalia (y) at α=0.05. This suggests that for every unit increase in the coefficient of donor funding; increases the chances of healthcare Service delivery in the Jubba land state of Somalia by 0.662 which is consistent with Krause, et al., (2015) who found an association between donor funding and the provision of health services.

**Medical Remittances**

The second goal sought to assess how medical remittances affected health care service delivery in the Jubbaland state of Somalia. The table presents the level of agreement on this subject. It is evaluated on several constructs; sufficiency of the remitted donor funds; change of remitted amount with time, client need factor on the fund remitted, remittances transfer on basis of patient treatment, payments upon request by healthcare facilities, electronic remittance to healthcare service providers, promptness and dependability of technology used to transfer medical payment and finally, level of agreement on the claim that the procedure was done electronically.

**Table 4: Description of Medical Remittances**

| | Strongly Disagree | | Disagree | | moderately agree | | Agree | | Strongly Agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| The number of funds remitted was sufficient | 11 | 6.0 | 30 | 16.3 | 37 | 20.1 | 77 | 41.8 | 29 | 15.8 |
| The number of funds remitted changes over time | 15 | 8.2 | 23 | 12.5 | 22 | 12.0 | 100 | 54.3 | 24 | 13.0 |
| The amount remitted depends on the client's need | 7 | 3.8 | 19 | 10.3 | 23 | 12.5 | 103 | 56.0 | 32 | 17.4 |
| The remittances are transferred anytime a patient was treated | 16 | 8.7 | 21 | 11.4 | 32 | 17.4 | 87 | 47.3 | 28 | 15.2 |
| The payments are made upon request by health care facilities. | 9 | 4.9 | 26 | 14.1 | 28 | 15.2 | 90 | 48.9 | 31 | 16.8 |
| Remittances are made electronically to healthcare service providers | 13 | 7.1 | 26 | 14.1 | 25 | 13.6 | 85 | 46.2 | 35 | 19.0 |
| The technology used to transfer medical payments was prompt and dependable | 5 | 2.7 | 26 | 14.1 | 21 | 11.4 | 97 | 52.7 | 35 | 19.0 |
| Procedures involved in making payments are simple and easy | 7 | 3.8 | 19 | 10.3 | 25 | 13.6 | 98 | 53.3 | 35 | 19.0 |
| The procedure was done electronically | 6 | 3.3 | 25 | 13.6 | 24 | 13.0 | 90 | 48.9 | 39 | 21.2 |

Medical remittances can have a significant impact on healthcare service delivery in low-income countries, where access to healthcare was often limited due to a lack of resources and infrastructure. It is also important to ensure that medical remittances are used in a way that was sustainable over the long term and that they are integrated into existing healthcare systems to ensure maximum impact on healthcare service delivery (Spiegel, 2017; Spiegel, Chanis, Scognamiglio & Trujillo, 2020).

Though not supported by the majority, there was a 41.8% agreement that the number of funds remitted was sufficient. There was an agreement from most participants that the number of funds remitted changed over time (54.3%) and the amount remitted depended on the client's need (56.0%) which is inconsistent with

Barnett, and Walker, (2015) who found that the donor funding could exceed the expected limits. Only a few participants agreed that the remittances were transferred anytime a patient was treated (47.3%); this implies that the procedures were not standardised. Also, there was a slight agreement (48.9%) though the most common response was that the payments are made upon request by health care facilities. Further, the study found that 46.2% of remittances were made electronically to healthcare service providers which supports the work of Kshetri (2017). It was also noted that the technology used to transfer medical payment was prompt and dependable as claimed by 52.7% of and procedures involved in making payments were simple and easy(53.3%). There was agreement that the procedure was done electronically (48.9%) which may vary from one donor to another. Table 5 shows the perceived rating of medical remittances effect health service delivery.

**Table 5: Medical remittances affect health care service delivery**

| | | n | % |
|---|---|---|---|
| To what extent do medical remittances affect health care service delivery | Large extent | 51 | 27.7 |
| | Moderate extent | 113 | 61.4 |
| | Small extent | 20 | 10.9 |
| | Total | 184 | 100.0 |

The study found that most participants perceived the extent to which medical remittances affected health service delivery to be moderate (61.4%).

Verbalising how the remittances influenced the provision of health services, it was observed Medical remittance was the engine that moves health activities in the health services; it ensures the smooth running of entire health activities, enhancement of patients' satisfaction, improvement of and expansion of medical facilities, recruit and training of the staff. Also, citizens can access additional services as the remittances increase expenditures on health and that promotes better series. It also promotes Information sharing used to improve health services.

**Association between Medical Remittances and Healthcare Service delivery**

Medical remittances can have a positive impact on healthcare service delivery by increasing access to healthcare services, improving the quality of care, contributing to healthcare infrastructure investment, reducing the financial burden on households, and increasing accountability and transparency in healthcare systems (Van Reisen, Fulgencio, Van Stam, Ong'ayo, & Van Dijk, (2016).

**Table 6. Association between medical remittances and healthcare service delivery**

**Correlations**

| | | Medical Remittances | Healthcare Service delivery |
|---|---|---|---|
| Medical Remittances | Pearson Correlation | 1 | .666** |
| | Sig. (2-tailed) | | .000 |
| | N | 184 | 184 |
| Healthcare Service delivery | Pearson Correlation | .666** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 184 | 184 |

**. Correlation is significant at the 0.01 level (2-tailed).

The study found the medical remittances had a significant effect on healthcare Service delivery at $\alpha$=0.05. The relationship between medical remittances and healthcare Service delivery is implied by r=0.666. The value of the coefficient implies a positive significant relationship between medical remittances (x) and healthcare Service delivery in Jubbaland state of Somalia (y) at $\alpha$=0.05. This suggests that for every unit increase in the coefficient of medical remittances; increase the chances of healthcare Service delivery in Jubbaland state of Somalia by 0.666; these findings are consistent with Wilson and Redd (2020) who found a significant association between the medical remittance by the donor and the performance of health services in Jubba land.

**Access to Healthcare facilities**

The third goal sought to assess how access to health facilities during the lock down affected health care service delivery in Jubbaland state of Somalia. The participants rated various constructs which include; the presence of medical facilities in every location, facility equipment to take care of the population, provision of primary health care in the facilities, the sufficiency of personnel in the facilities to give services to the people and availability of medical personnel when their services were needed. Also, the study rated the availability of drugs in healthcare facilities for various ailments and the affordability of the drugs to all people. This is presented in table 7.

**Table 7: Description of access to Healthcare facilities**

| | Strongly Disagree | | Disagree | | moderately agree | | Agree | | Strongly Agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| There are medical facilities in every location | 14 | 7.6 | 27 | 14.7 | 22 | 12.0 | 93 | 50.5 | 28 | 15.2 |
| Every facility was equipped enough to take care of the population | 18 | 9.8 | 33 | 17.9 | 27 | 14.7 | 81 | 44.0 | 25 | 13.6 |
| The facilities offer primary health care | 11 | 6.0 | 17 | 9.2 | 24 | 13.0 | 99 | 53.8 | 33 | 17.9 |
| The facilities have enough personnel to give services to the people. | 18 | 9.8 | 27 | 14.7 | 31 | 16.8 | 84 | 45.7 | 24 | 13.0 |
| The personnel are well-trained to provide services to the people | 11 | 6.0 | 22 | 12.0 | 30 | 16.3 | 94 | 51.1 | 27 | 14.7 |
| The medical personnel are always present when their services are needed | 12 | 6.5 | 23 | 12.5 | 24 | 13.0 | 91 | 49.5 | 34 | 18.5 |
| Healthcare facilities have drugs for various ailments | 23 | 13.5 | 20 | 11.8 | 105 | 61.8 | 22 | 12.9 | 0 | 0.0 |
| The drugs in health facilities are affordable to all. | 12 | 6.5 | 19 | 10.3 | 30 | 16.3 | 98 | 53.3 | 25 | 13.6 |

The lockdowns and restrictions on movement imposed in response to the COVID-19 pandemic have had a significant impact on access to health facilities and, in turn, on healthcare service delivery (Ahmed, et al., 2020; Bukuluki et al., 2022). In many countries, the lockdowns resulted in the closure of health facilities or the scaling back of non-essential services, which limited access to healthcare services for many individuals (Panneer, et al., 2022). In The case of this study, most participants, accounting for nearly half agreed that there were medical facilities in every location (50.5%). It was also agreed that every facility was equipped enough to take care of the population (44.0%), a case in which Mohamoud, et al., (2021) was only nearly achievable in the urban areas. There was agreement among most participants that the facilities offer primary health care (53.8%). It was further agreed by most participants that the facilities had enough personnel to give services to the people (4.7%) who were well trained to provide services to the people (51.1%); however, Mohamoud, et al., (2021) argues that the government made effort to get trained persons but the situation was not uniform. It was also agreed by most participants that the medical personnel were always present when their services were needed (49.5%). Participants moderately agreed that the healthcare facilities had drugs for various ailments (61.8%) which were affordable to all as implied by 53.3% of agreements. Table 8 shows the agreement on drug affordability in health facilities.

**Table 8: Drugs Affordability in the Facilities**

| | | n | % |
|---|---|---|---|
| The drugs in health facilities are affordable to all. | Strongly Disagree | 12 | 6.5 |
| | Disagree | 19 | 10.3 |
| | moderately agree | 30 | 16.3 |
| | Agree | 98 | 53.3 |
| | Strongly Agree | 25 | 13.6 |
| | Total | 184 | 100.0 |

The study found that most participants agreed that the drugs in the health facilities are affordable to all (53.3%).

**Association between Access to Healthcare facilities and Healthcare Service delivery**

Access to healthcare facilities and healthcare service delivery are critical factors that influence people's health outcomes.

**Table 9: Association between Access to Healthcare facilities and Healthcare Service delivery**

**Correlations**

| | | Access to Healthcare facilities | Healthcare Service delivery |
|---|---|---|---|
| Access to Healthcare facilities | Pearson Correlation | 1 | .695** |
| | Sig. (2-tailed) | | .000 |
| | N | 184 | 184 |
| Healthcare Service delivery | Pearson Correlation | .695** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 184 | 184 |

**. Correlation is significant at the 0.01 level (2-tailed).

The study found that access to Healthcare facilities had a significant effect on healthcare Service delivery at α=0.05. The relationship between access to Healthcare facilities and healthcare Service delivery is implied by r=0.695. The value of the coefficient implies a positive significant relationship between access to Healthcare facilities (x) and healthcare Service delivery in the Jubba land state of Somalia (y) at α=0.05. This suggests that for every unit increase in the coefficient of access to Healthcare facilities; increase the chances of healthcare Service delivery in Jubba land state of Somalia by 0.695 which is consistent with Usak, et al (2020)

**Access to Medical Professionals**

Also, the study sought to assess how access to medical professionals affected the health care service delivery in the Jubba land state of Somalia. Various constructs/claims were rated by the participants; these include; the presence of specialized healthcare workers in the healthcare facilities in the area, ease of access to medical officers for various services, caseload per medical provider, medical officers availability in the account of 24 hours to attend to any cases of emergency and possibility of medical officers being overwhelmed by the number of people they attend to. Further, the sections assessed the accuracy of patients' diagnoses and the accuracy of doctors' descriptions.

**Table 10: Description of access to medical professionals**

| | Strongly Disagree | | Disagree | | moderately agree | | Agree | | Strongly Agree | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| The health facilities in the area have specialized healthcare workers | 13 | 7.1 | 26 | 14.1 | 26 | 14.1 | 86 | 46.7 | 33 | 17.9 |
| Medical officers can easily be accessed by all for various services | 8 | 4.3 | 18 | 9.8 | 24 | 13.0 | 96 | 52.2 | 38 | 20.7 |
| The caseload per medical provider was high. | 5 | 2.7 | 15 | 8.2 | 30 | 16.3 | 102 | 55.4 | 32 | 17.4 |
| The medical officers are available 24 hours a to attend to any cases of emergency | 15 | 8.2 | 24 | 13.0 | 27 | 14.7 | 93 | 50.5 | 25 | 13.6 |
| Medical providers are always overwhelmed by the number of people they attend to | 8 | 4.3 | 12 | 6.5 | 26 | 14.1 | 111 | 60.3 | 27 | 14.7 |
| The medical officers are always accurate in diagnosing patients | 5 | 2.7 | 21 | 11.4 | 28 | 15.2 | 101 | 54.9 | 29 | 15.8 |
| Most medical officers ensure enough tests are undertaken before treatment was done. | 13 | 7.1 | 19 | 10.3 | 32 | 17.4 | 87 | 47.3 | 33 | 17.9 |
| Patients are always given accurate treatment | 5 | 2.8 | 11 | 6.1 | 29 | 16.0 | 101 | 55.8 | 35 | 19.3 |
| Medical officers prescribe the right drugs to patients | 5 | 2.7 | 14 | 7.6 | 28 | 15.2 | 106 | 57.6 | 31 | 16.8 |

Medical professionals are essential to the delivery of healthcare services (Worlu, Kehinde, & Borishade, 2016). Their expertise and dedication to patient care are critical in promoting good health and treating illnesses effectively. Most participants agreed that the health facilities in the area have specialized healthcare workers (46.7%) and were easily accessed by all for various services (52.2%); the findings support the United nation(2020), country preparedness and response plan case of Juba land which considered Juba land not sufficiently prepared in terms of health professionals. Most participants further agreed the caseload per medical provider was high (55.4%), however, the medical officers were available 24 hours to attend to any cases of emergency (50.5%)., a finding which supports the work of Kadri, et al., (2021). The study found most medical providers were always overwhelmed by the number of people they attended (60.3%). Most participants agreed that the medical officers are always accurate in diagnosing patients (54.9%). Most participants reported that most of the medical officers ensured enough tests were undertaken before treatment was done (47.3%) which is consistent with Dorji, (2021). Most respondents agreed that patients were always given accurate treatment (55.8%) and medical officers prescribed the right drugs to patients as implied by 57.6%. Table 11 shows the perceived rating of access to healthcare facilities' effect on health service delivery.

**Table 11: Perceived effect of access to healthcare facilities on healthcare service delivery**

| | | n | % |
|---|---|---|---|
| To what extent does access to healthcare facilities affect healthcare service delivery | Large extent | 65 | 35.3 |
| | Moderate extent | 96 | 52.2 |
| | Small extent | 23 | 12.5 |
| | Total | 184 | 100.0 |

The study found that most participants perceived the extent to which healthcare facilities affect healthcare service delivery (52.2%).

**Association between Access to medical professionals and Healthcare Service delivery**

The study found that access to medical professionals had a significant effect on healthcare Service delivery at α=0.05. The relationship between access to medical professionals and healthcare Service delivery is implied by r=0.712. The value of the coefficient implies a positive significant relationship between access to medical professionals (x) and healthcare Service delivery in the Jubba land state of Somalia (y) at α=0.05. This suggests that for every unit increase in the coefficient of access to medical professionals; increases the chances of healthcare Service delivery in the Jubba land state of Somalia by 0.712.

**Table 12: Association between access to medical professionals and Healthcare Service delivery**

**Correlations**

| | | Access to medical professionals | Healthcare Service delivery |
|---|---|---|---|
| Access to medical professionals | Pearson Correlation | 1 | .712** |
| | Sig. (2-tailed) | | .000 |
| | N | 184 | 184 |
| Healthcare Service delivery | Pearson Correlation | .712** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 184 | 184 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Healthcare Service delivery**

The study assessed the healthcare delivery services in Jubba land state of Somalia on the account of infrastructure availability, equipment availability, customer satisfaction, responsiveness to patient concerns; the speed of services and the quality of the services.

**Table 13: Description of Healthcare Service delivery**

| | Not Effective | | Least Effective | | Fair | | More effective | | Most effective | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| Infrastructure availability | 8 | 4.3 | 21 | 11.4 | 25 | 13.6 | 90 | 48.9 | 40 | 21.7 |
| Equipment availability | 14 | 7.6 | 20 | 10.9 | 20 | 10.9 | 99 | 53.8 | 31 | 16.8 |
| Customer satisfaction | 5 | 2.7 | 26 | 14.1 | 23 | 12.5 | 94 | 51.1 | 36 | 19.6 |
| Responsiveness to patient concerns | 8 | 4.3 | 21 | 11.4 | 27 | 14.7 | 77 | 41.8 | 51 | 27.7 |
| Speed of services | 5 | 2.7 | 15 | 8.2 | 23 | 12.5 | 98 | 53.3 | 43 | 23.4 |
| Quality of services | 7 | 3.8 | 19 | 10.3 | 25 | 13.6 | 92 | 50.0 | 41 | 22.3 |

On the aspect of healthcare service delivery, most participants reported that the infrastructure availability was more effective (48.9%) which supports the work of Ahmed, Ataullahjan, Gaffey, M. Osman, Umutoni, Bhutta and Dalmar (2020) who considered health infrastructure in Jubba land as average. Also, most participants said that there was more effective equipment availability (53.8%). It was perceived by most customers were satisfied as implied by participants who considered it to be more effective (51.1%). Most participants considered responsiveness to neither patient concerns (41.8%) which support neither work of Nor, Nyagah, Ali, Karanja, & Afrah, (2022), speed of services (53.3%) and quality of services (50.0%) to be more responsible. Table 14 showed the perceived rating of access to medical professionals' effect on health service delivery.

**Table 14: Perceived effect of access to medical professionals on healthcare service delivery**

| | | **n** | **%** |
|---|---|---|---|
| **To what extent does access to medical professionals affect healthcare service delivery** | Large extent | 51 | 27.7 |
| | Moderate extent | 113 | 61.4 |
| | Small extent | 20 | 10.9 |
| | Total | 184 | 100.0 |

The study found that most participants perceived the extent to which access to medical professionals affects healthcare service delivery was moderate (61.4%).

**Regression analysis**

Regression is a statistical method for determining the relationship between two or more variables. The R square is an output that indicates how well the effectiveness of covid-19 control measures explains the healthcare service delivery in Jubba land state of Somalia. The study found 58.8% of variations in the healthcare service delivery could be explained by the effectiveness of covid-19 control measures.

**Table 15: Contribution of covid-19 control measures on healthcare Service delivery**

| Model Summary | | | | |
|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | 0.767[a] | .588 | 0.579 | 3.11419 |

a. Predictors: (Constant), Access to medical professionals, Medical Remittances, Donor funding, Access to Healthcare facilities

Table 15 shows the significance of the regression model in predicting healthcare service delivery using the effectiveness of covid-19 control measures. The value of F (4, 179) = 63.813, P-value < 0.05 shows that the effectiveness of covid-19 control measures significantly predicts healthcare service delivery in the Jubba land state of Somalia.

**Table 16: Significance of covid-19 control measures in healthcare Service delivery**

| ANOVA[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 2475.479 | 4 | 618.870 | 63.813 | .000[b] |
| | Residual | 1735.978 | 179 | 9.698 | | |
| | Total | 4211.457 | 183 | | | |

a. Dependent Variable: Healthcare Service delivery

b. Predictors: (Constant), Access to medical professionals, Medical Remittances, Donor funding, Access to Healthcare facilities

Multiple regression analysis was conducted to determine the contribution of the effectiveness of covid-19 control measures to the healthcare service delivery in the Jubba Land state of Somalia. The findings show that access to medical professionals, donor funding, and access to healthcare facilities had a statistically significant contribution to the healthcare service delivery in the Jubba land state of Somalia at $\alpha$=0.05. On the other hand, Medical Remittances did not significantly contribute to the healthcare service delivery in the Jubba land state of Somalia at $\alpha$=0.05.

**Table 17: Significance of covid-19 control measures in healthcare Service delivery**

| Coefficients[a] | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.824 | 1.302 | | 2.168 | .031 |
| | Donor funding | .147 | .073 | .161 | 2.005 | .046 |
| | Medical Remittances | .113 | .059 | .161 | 1.921 | .056 |
| | Access to Healthcare facilities | .149 | .062 | .210 | 2.392 | .018 |
| | Access to medical professionals | .241 | .063 | .320 | 3.850 | .000 |

a. Dependent Variable: Healthcare Service delivery

The regression model was given by the following equation;

$$Y=\alpha+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+E_i$$

Healthcare Service delivery = 2.824+ 0.147 (donor funding) +0.149 (access to healthcare facilities) +0.241 (access to medical professionals).

These findings imply that healthcare service delivery would increase at a constant of 2.824 units even with zero effectiveness of covid-19 control measures. Access to medical professionals was found to be the highest contributor to the healthcare service delivery in the Jubba Land State of Somalia followed by access to healthcare facilities, donor funding and finally medical remittances. This implies health care systems in Jubba land can increase healthcare service delivery significantly if they focused on access to donor funding, access to healthcare facilities and access medical professionals.

## CONCLUSION AND RECOMMENDATIONS

The study concluded that the effectiveness of covid-19 control measures significantly affected the healthcare service delivery in Jubba land state of Somalia; donor funding, medical remittances, access to health facilities during the lock and access to medical professionals affected the healthcare service delivery in Jubba land state of Somalia.

The study also concluded that donor funding affected the health care service delivery in the Jubba land state of Somalia. It can be concluded that donor availed monies, there existed accountability frameworks in place to ensure good use of funds, donors' local representation, mechanisms to ensure the use of money was transparent, periodic updates made on how funds were utilized, the sufficiency of the donated amount and termation of the funds according to the needs that have been cited to donors affected the health care service delivery in Jubba land state of Somalia.

The study also concluded that medical remittances affected the health care service delivery in the Jubba land state of Somalia. Sufficiency of the remitted donor funds; change of remitted amount with time, client need factor on the fund remitted, payments upon request by health care facilities, electronic remittance to healthcare service providers, promptness and dependability of technology used to transfer medical payment and level of agreement on the claim that the procedure was done electronically affected the health care service delivery in Jubba land state of Somalia.

The study also concluded that access to health facilities during the lockdown affected the health care service delivery in the Jubba land state of Somalia. The presence of medical facilities in every location, facility equipment to take care of the population, provision of primary health care in the facilities, the sufficiency of personnel in the facilities to give services to the people and availability of medical personnel when their services were needed, availability of drugs in healthcare facilities for various ailments and affordability of the drugs to all people affected the health care service delivery in Jubba land state of Somalia.

The study also concluded that access to medical professionals affected the health care service delivery in the Jubba land state of Somalia. The presence of specialized healthcare workers in the healthcare facilities, ease of access to medical officers for various services, manageable caseload per medical professional, medical officers availability in 24 hours to attend to any cases of emergency, access to the accuracy of patients' diagnosing and accuracy in doctors' descriptions affected the health care service delivery in Jubba land state of Somalia.

The study recommended improvement of the effectiveness of preventive control measures to enforce better health care service delivery. The study recommends the enhancement of donor funding to achieve better healthcare service delivery in the Jubba land state of Somalia. Efforts should be made to ensure the regular

provision of monies, enhanced accountability, clear mechanisms to monitor utilization of donor funds, periodic updates and utilization of funds to activities cited to donors.

The study recommends the enhancement of medical remittances to achieve better health care service delivery in the Jubba land state of Somalia. The management of healthcare systems should strive to have sufficient remittances, regular, and seamless remittances of the funds.

The study recommends enhanced access to health facilities to achieve better healthcare service delivery in the Jubba land state of Somalia. The health care system managers should strive to have well-equipped medical facilities in every location with complete primary health care services, enough available personnel as well as enough affordable drugs.

The study recommends enhanced access to medical professionals to achieve better healthcare service delivery in the Jubba land state of Somalia. Efforts should be made to ensure facilities in the area have healthcare workers who are specialized, easily be accessed in 24 hours. The facilities should avoid overwhelming the health workers by ensuring a manageable caseload to promote accurate diagnosing and treatments.

**Areas of further studies**

The stud focused on the effectiveness of COVID-19 practices on health services delivery in the Jubba land state of Somalia. A study can be conducted to assess the ethical practices of health services delivery in neighbouring countries such as Kenya.

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