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## ENHANCING HEALTHCARE QUALITY AMONG COMMUNITY HEALTH FACILITIES WITH RESULTS-BASED FUNDING IN EASTERN UGANDA.

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### Abstract:

This study examines the effects of Result-Based Funding (RBF) on the healthcare quality in Health Centre (HC) III in Jinja District concerning patient waiting time, drug stockout, choice of healthcare, and availability of essential medicines in Uganda's community health facilities. The research used a cross-sectional survey design and found that results-based funding like timely funding, and funding size had a significant relationship with healthcare quality. Management practices also had a strong positive correlation with healthcare quality, but most importantly management practices moderated the relationship between results-based funding and healthcare quality among Health Centre IIIs in Jinja District. The study recommends increasing the size of RBF, sending or providing timely funds, improving the fund size, and building and maintaining results-based incentives for staff that implement activities at the health facilities. Health Centre management to continue activity planning, improve staffing levels, carry out regular monitoring of all activities supported by the RBF programme, and ensure that storage capacity is enabled for the safety of essential medicines and other stores.

### Keywords:

Results-Based Funding, Management Practices, Healthcare Quality, Health Centre III, Jinja, Uganda

## Introduction

Significant investments in healthcare quality have been made by the different governments (Burstin et al., 2016), Uganda inclusive. According to the authors, the quality of healthcare can be seen in an environment where everyone can access, safe, and effective medicines which is a pathway to achieving universal coverage of healthcare for each of the nations. The difference between the developed and less developed nations is that in the low- and middle-income ones is the apparent the apparent lack of consistent supplies of reliable, good quality, effective, and affordable essential medicines (Eden et al., 2019). The World Health Organisation in Hemmeda et al. (2023) define essential drugs to mean those that meet the primary healthcare needs of the community, and they are selected concerning their relative importance to the health of the public. Studies conducted in African countries have shown that the availability of drugs in the community health sector is challenging, yet the accessibility of essential medicines and healthcare services in these nations is influenced by a host of multifaceted issues, ranging from inadequate funding, regulatory issues, lengthy procurement procedures, poor logistics, and inadequate facility management systems (Yenet et al., 2023; Amimo et al., 2021; Nguyen et al., 2012).

This therefore brings in the essence of RBF intending to bridge the gap and vary the environments that occurred before it was designed. RBF begins with the desired outcomes, such as reducing maternal and infant deaths, increasing the number of children immunized, and increasing the number of deliveries of essential medicines and to health facilities, among other things, and then delegating the decision-making to local managers and health workers (Grittner, n.d.). Mushasha and El Bcheraoui (2023) indicate that though the effects vary widely by context, and indicate that several researches undertaken by various authors reveal that results-based financing models generally have a positive effect on how institutions deliver their healthcare services and the number of visits to the facilities.

The African nations implemented the RBF programs on a national level, particularly in the health sector (Soucat et al., 2017) and this developed from result-based management that adopted the same traits of being results-driven. Additionally, RBF offers encouraging results in comparison to more conventional approaches that pour resources into an endeavor and assume that results would follow (Bertone et al., 2019; Oxman & Fretheim, 2009). Soeters et al. (2011) observe that a thorough and reliable implementation of RBF in the Democratic Republic of Congo brought out outstanding results that can be scaled up to other low-income countries. This program aims at hastening the availability, usability, and accessibility of high-quality healthcare at rural district hospitals and health facilities. In Uganda, results-based financing became popular between 2014 and 2015 (Ssengooba et al., 2021). According to (Ssengooba et al., 2021) the scale-up of the RBF has been due to external funding opportunities that are tied to this form of funding, the increased nature of expertise to handle RBF which in turn is likely to frame the capacity of the Ministry staff, the desire to align and fit RBF structures with institutional legitimacy and the desire once again of achieving sustainable and quality service delivery in the healthcare sector. In light of this, RBF is being offered to assist governments in implementing the program that would guarantee the supply of necessary medications and medical supplies in healthcare institutions.

## Statement of the Problem

According to Katende et al. (2023), there have been disruptions in the delivery of necessary medications and related goods, and overall facility performance in Uganda has decreased. The

mean aggregate performance of health facilities in 2020 was 70.2 compared to 74.8 in 2016, indicating a decrease in the availability and preparedness of health services. The standard of patient treatment and experience was lower in certain health facilities, with scores of 8.7 in 2020 falling between 8.4 to 9.1 in the 95 percent confidence interval and 9.5 in 2016 between 9.1 and 9.9. Witter, Bertone, et al. (2020) similarly indicate that the public healthcare system has had poor performance regarding low levels of physical access to some locations, poor patient care quality inadequate incentive structures for the staff in the health sector. In Uganda, the majority of hospitals and specialized health facilities continue to experience stockouts of essential medicines and health supplies for periods ranging from 9 days up to 360 days annually (The Office of the Auditor General (OAG) 2022). The same report indicated that over 90 percent of the facilities under study received medical items that they neither requested for nor expected and the same number of facilities received medical supplies in excess of what was requested. This could be tagged to inadequate funding modalities to fulfil the requirements of RBF that the government of Uganda has adopted in the health sector hence calling for further investigation into the matter.

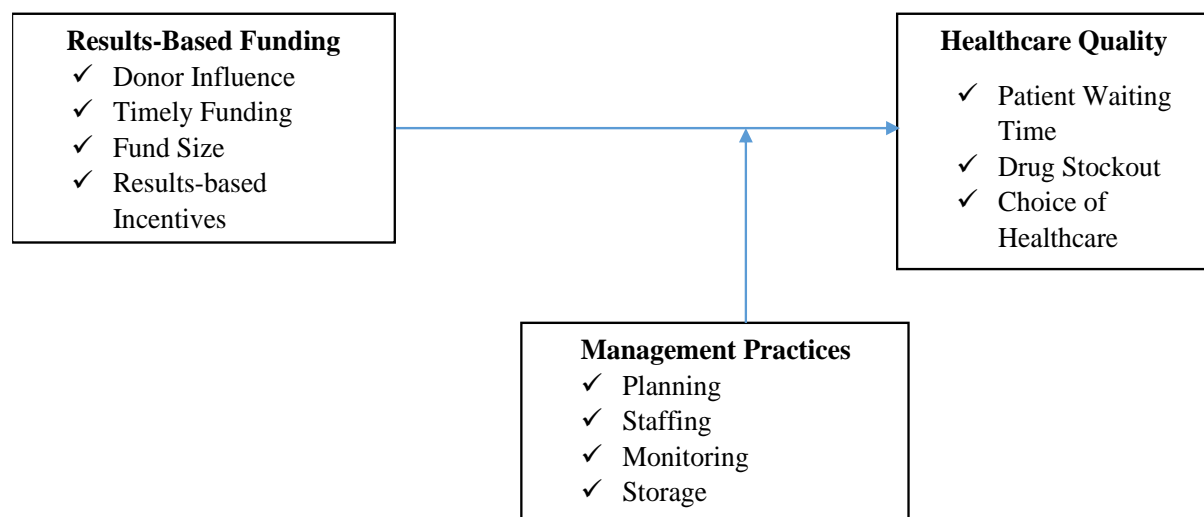
### Objectives of The Study

- i) To establish the relationship between RBF and healthcare quality
- ii) To establish the moderating role of health facility practices in a relationship between RBF and healthcare quality.

### Study Hypotheses

H1: Results-based funding is significantly related to healthcare quality among health facilities in the Busoga region.

H2: There is a significant moderating effect of health facility practices on the relationship between RBF and the healthcare quality among health facilities in the Busoga region.



**Figure 1: Conceptual Framework**

Source: Adopted and modified from Toonen et al. (2017)

## Theoretical and Literature Review

### *Theories that Underpin Result-based Funding and Healthcare Quality.*

Several theories underpin Results-Based Funding (RBF) and its impact on the quality of healthcare services. The agency theory suggests that when healthcare providers are given financial incentives based on their performance, they are more likely to work towards achieving the desired outcomes. RBF aligns with this theory by linking funding to the achievement of specific results, such as improved quality of service delivery (Kivistö, 2005; Mahaney & Lederer, 2011; Parker et al., 2018). The economic theory on the other hand indicates that individuals and organizations respond to incentives and RBF programs provide financial incentives to healthcare facilities and workers based on their performance, encouraging them to provide better quality healthcare services to receive the rewards (Dougherty & Natow, 2020). RBF programmes can incorporate elements of motivation theory by providing performance-based incentives to healthcare workers. This theory suggests that individuals are motivated to perform better when they are rewarded for their efforts. The incentives provided through RBF can motivate healthcare workers to improve healthcare among the Health Centre III facilities. The concepts discussed here offer tangible agenda to support understanding the relevance of results-based programmes in influencing healthcare quality by providing financial incentives, improving motivation, enhancing accountability, and increasing access to resources.

According to the WHO's 2004 World Medicines Situation Report, 67% of people do not have access to basic medications. Sakthivel (2005) in Garg & Karan (2009) suggests that India is regarded as one of the world's top producers of generic medications. Nonetheless, it is also asserted that the majority of Indians do not have access to basic medical care. Inadequate forecasting, planning, and logistics as well as a dearth of trustworthy and easily accessible data on drug consumption are the main issues Oluka (2016) claims affect hospitals and health facilities in Uganda. Oluka (2016) also reveals that Health Centre IVs mostly struggle with inadequate procurement knowledge and information consumption, while Health Centre IIIs deal with poor procurement procedures and logistics. Inadequate logistics, collaborative relationships, and procurement processes are challenges faced by Health Centre IIs. Despite Uganda's efforts to fight diseases and poverty rates amidst the communities, the author indicates that Uganda's Ministry of Health has been struggling to alleviate the national shortage of essential drugs that could risk the lives of tens of thousands of people. The primary healthcare in Uganda is below international standards, a decline from that which existed in the mid-60s and 70s (Ondoa et al., 2013).

### *Results-based Incentives and Healthcare Quality*

Craig (2017) argues that results-based incentives aim to improve health outcomes for mothers and newborns in developing nations by providing benefits related to improved healthcare. However, most countries lack systematic analysis of these incentives' effects on expectant mothers and babies. Results-based incentive schemes are gaining popularity in developing world health systems to align individual incentive structures with broader healthcare goals. These schemes focus majorly on healthcare quality improvement, aiming to improve service uptake and achieve the Millennium Development Goals (Ergo, et al., 2012) Implementing these schemes requires clarifying key healthcare priorities, such as interventions aiming to achieve Sustainable Development Goals or reduce morbidity and mortality (Meessen et al., 2011).

### ***Results Based Funding and Healthcare Quality.***

In some low-income countries like Burundi, the Democratic Republic of Congo, and Rwanda, RBF has led to rapid improvements in access and quality of healthcare after undertaking piloting of the system. Under this system of payment schemes, government and development partner funders, subsidise indigenous healthcare providers for achieving certain benchmarks, such as a child fully immunized, childbirth conducted in a health facility performance-based Funding (PBF) programmes have improved healthcare more than other reform approaches in the same countries (Fritsche & Peabody, 2018). The purchasing authorities develop contracts with the contractors to make available a set of curative and preventive health activities to the populace and are critical in monitoring and auditing results at the health facility level. This prevents fraud at the consumer level and empowers the communities through patient satisfaction surveys. The information is then used during the contract renewal negotiations with health facilities to improve service delivery. Comparatively, results-based funding supports separating most of the roles in the health system (Meessen et al., 2011). Providing results-based subsidies results in patients getting quality healthcare services than those facilities financed differently. PBF can also be effective even in these troubled nations.

However, some critics like (Paul et al., 2018) contend that RBF may not satisfy what it proposes to fulfil since it might be risky, costly, and have obstinate effects, which render this approach ineffective and inefficient. There are concerns that there is inadequate local ownership of this programme considering the amounts of time and funds that are absorbed yet, there is tentative evidence of its success and a feeling that this might be donor strategy and fashion. The authors further indicate that this approach focuses mostly on short-term outputs while diverting resources and attention from processes that can provide wider and long-term reforms of change. Other authors like Eldridge & Palmer (2009) provide similar views that even when results-based incentives are highly advocated for as thought to improve performance in low- and middle-income countries, little consensus might exist regarding the meaning and use of this notion. Despite the gaps identified in these studies, RBF has still been found to improve the quality and quantity of health programmes in the African context (Sato & Belel, 2021).

### ***Funding and Quality of Healthcare in Uganda.***

The government and development partners are implementing an RBF strategy, a purchasing mechanism where health providers are partially funded based on their performance of agreed outputs. This approach aims to make health systems more strategic in purchasing healthcare. Accreditation, a benchmarking process, ensures facilities meet specific standards and are recognized as capable. This not only increases client trust in healthcare quality but also enhances collaboration opportunities. Uganda's health sector faces significant funding constraints, with a budget increase from Ugx.660 billion in 2010-2011 to Ugx.1,271 billion in 2015-2016. However, this growth is not proportional to the population growth and service delivery. The government spends only USD12 per capita, resulting in low non-wage funds allocated to hospitals and health centres hence, negatively impacting the quality of healthcare delivery (Byamukama, 2018).

### ***Facilities Management and Healthcare Quality in Service Delivery***

Facility organization and management in Uganda focus on effective operations, human resource deployment, and information systems for quality improvement. The national healthcare delivery system aims for Universal Health Coverage (UHC) with essential healthcare services (Ministry of Health-Uganda, 2016). The Second National Health Policy

prioritizes client and community well-being (Gutierrez, 2018), implementing quality management interventions like the Yellow Star Programme and the 5S to improve primary healthcare services in districts (Ministry of Health-Uganda, 2016).

Needleman et al. (2019) conducted research on the relationship between the level of staffing by nurses in hospitals and patients' but the outcomes have been inconclusive. Whereas some studies have reported an association between higher levels of staffing by nurses and lower mortality as well as lower rates of other adverse outcomes, others have found no such relations. Previous studies have assessed only a limited number of outcomes that are sensitive to the extent or quality of nursing care, such as falls by patients and errors in medication. It is uncertain whether lower levels of staffing by nurses at hospitals are associated with an increased risk that patients will have complications or die.

### ***Facility-Related Factors Affecting Healthcare Quality Delivery.***

According to Witter, Chirwa, et al. (2020), the poor performance of the community healthcare system, including low levels of physical access in some places, poor quality of care, a lack of adequate incentive structures for health workers, weak management, and inadequate data of a sufficient quality to monitor and evaluate progress has been a major deterrent to the quality healthcare system. Uganda, Zimbabwe, and DRC have implemented RBF strategies to improve strategic purchasing and health systems efficiency, accelerating progress towards universal health coverage and maximizing value from health sector investments (BPaola et al., 2019).

## **Methodology**

### ***Research Design, Population, and Sample Size.***

This academic research study used a cross-sectional survey design to gather in-depth information on result-based funding and healthcare delivery in Uganda (Van der Stede, 2014). This design allows for quick collection of raw data from practical experience, making it suitable for situation analysis of social events, combining relevance to the research purpose with economy and procedure (Kothari, 2004). 190,907 patients who received medical care at the public health Center IIIs in Jinja District served as the study's target group (The Republic of Uganda, 2019). The study was conducted in nine (9) Health Centre III (HCIIIs) that are directly managed by Jinja District but also receive results-based funding (Jinja District Local Government, 2021). These are Kakira HCIII, Mpambwa HCIII, Busedde HCIII, Wakitaka HCIII, Lukolo HCIII, Budima HCIII, Butagaya HCIII, Magamaga HCIII, and Kakaire HCIII. The researcher used the Krejcie and Morgan (1970) table of sample determination to select a sample of 384 patients which the study employed on the selected health facilities. The sample distribution of the population is provided in Table 1 below.

**Table 1: Sample Size Distribution by Health Facilities**

<b>Health Facility</b>	<b>Population</b>	<b>Sample size</b>
Kakira HCIII	32,034	64
Mpambwa HCIII	25,228	51
Busedde HCIII	20,009	40
Wakitaka HCIII	20,102	40
Lukolo HCIII	19,500	39
Budima HCIII	18,991	38
Butagaya HCIII	18,610	38

Magamaga HCIII	18,222	37
Kakaire HCIII	18,211	37
<b>Total</b>	<b>190,907</b>	<b>384</b>

Source: The Republic of Uganda (2019)

We employed a purposive sampling technique to select the sample for only the members of the population who were available, accessible, and willing to participate in the study (Etikan, 2016). A structured questionnaire was used to collect the demographics and quantitative data with a 5-point Likert scale (Clason & Dormody, n.d.; Likert, 1932) with responses ranging from strongly disagree = 1 to strongly agree = 5. This scale helps the researcher to evaluate the attitudes, opinions, and experiences of patients about the healthcare quality offered in the health facilities (Sousa, 2003). Before the commencement of the data collection, the researcher first sought permission from the Jinja District Local Authorities. Once provided, the data collection commenced with a pilot study of thirty participants from similar health facilities to improve unclear items. The study used the modified self-administered questionnaire from previous research to measure and fit its hypotheses, and thereafter, conducted an exploratory factor analysis to identify significant dimensions and item loadings.

The content validity and reliability of the instrument were computed to determine if the items in the instrument were valid at a threshold of 0.70 (Taber, 2018). Validity was estimated using the expert judgement method (Fernández-Gómez et al., 2020), computed using the Content Validity Index (CVI). Reliability was measured using Cronbach's alfa coefficients which reflects the internal consistency of the scales used in the data collection instrument for each of the variables under study. The Cronbach's Alfa test for all variables returned reliability coefficients above the acceptable threshold of 0.70 (Taber, 2018), reflecting higher internal consistency. Data was analysed using the IBM Statistical Package for Social Sciences (SPSS) version 27. The results of both validity and reliability are shown in Table 2 below.

**Table 2: Content Validity and Reliability of the Instruments**

Variable	No. of items	CVI score	Cronbach's Alfa Coefficient
Results-based Funding (RBF)	15	0.884	0.866
Management Practices (MP)	17	0.775	0.784
Healthcare Quality (HcQ)	7	0.810	0.799

Source: Primary data

### Results of The Study

The study sought to examine results-based funding and healthcare quality in Uganda moderated by the management practices of the nine health facilities in Jinja District. The survey achieved a response rate of 79.7% (306) out of the 384 questionnaires distributed to the patients and out of these, 297 questionnaires were used for the analysis. Results reveal that the majority (58.4%) of patients in the health facilities supported by the RBF programme were aged between 31-40 years, followed by 25.2% aged 41-50 years, 11.9% aged 18-30 years, and the rest were aged 51 and above years of age. The mean (M) and standard deviation (SD) of the study variables were distributed as follows: results-based funding (M=3.44, SD=1.104), management practices (M=3.38, SD=1.323), and healthcare quality (M=3.45, SD=1.396) as can be seen in Table 3 below. Also, results-based funding and healthcare quality ( $r=.556$ ,  $p<.01$ ) correlated significantly and positively. Results-based funding and management practices significantly

correlated with each other ( $r=.476, p<.01$ ). Similarly, management practices ( $r=.502, p<.01$ ) were positively and significantly correlated. The results in Table 3 show that the variables under study have a relationship with each other.

**Table 3: Shows the Mean, Standard Deviations, and Correlations**

	Mean	S.D	1	2	3
1. Results-based Funding (RBF)	3.44	1.104	1		
2. Management Practices (MP)	3.38	1.323	.476**	1	
3. Healthcare Quality (HcQ)	3.45	1.396	.556**	.502**	1

\*\* correlation significant at 0.01 level (2-tailed), \* Correlation significant at 0.05 level (2-tailed)

Source: Primary Data

### Regression Analysis Results, Discussions, and Recommendations

The regression analysis model was used to confirm the relationship between the study variables of results-based funding, healthcare quality, and management practices as a moderator in public health facilities in Jinja, Uganda. Results-based funding was measured by donor influence, timely funding, fund size, and results-based incentives. Management practices were measured by activity planning, staffing levels, level of monitoring, and storage capacity. Lastly, healthcare quality was measured by patient waiting time, drug stockouts, and the choice of healthcare. The regression results are presented in Table 4 below in two models; I and II. Model I relates to a situation where management practices (MPs) as well are regressed on healthcare quality while in Model II, MPs are used as a moderator on a relationship between results-based funding and healthcare quality among the health centres at level three in Jinja District.

Overall, the moderation model made a significant contribution, accounting for 76.2% of the variance in the value for healthcare quality ( $R^2 = .762, p = .000$ ). the model is such a good measure of healthcare quality compared to when the model does not include moderation effects of management practices such as activity planning, staffing levels, level of monitoring, and storage capacity of the facilities. The variability explained by the model is high in the scientific fields and is considered good in value estimation studies as all the factors that go into explaining a concept of healthcare quality (Field, 2013). The model also shows that 23.8% of patient healthcare quality in health centre IIIs in Jinja is explained by other factors that were not the focus of this study.

**Table 4: Results of the Hierarchical Regression Tests**

	Model I			Model II		
	B	SE	p	B	SE	p
Results-based Funding (RBF)	.664	.035	.000	.634	0.037	.000
Management Practices (MP)	.498	.039	.000			
RBF*MP				.411	.042	.003
<b>Model Summary</b>						
R <sup>2</sup>		.577, p=.000			.762, p=.000	
Change in R <sup>2</sup>		.577			.185	
Adjusted R <sup>2</sup>		.522			.751	



HcQ - Healthcare Quality; RBF – Results-based Funding; MP – Management Practices; B – Unstandardised Beta; SE – Standard Error

Source: Primary data.

The results presented in Table 4 revealed that model I made a significant contribution of 57.7% ( $R^2 = .577$ ) in explaining the variability in healthcare quality considering direct relationships between results-based funding and healthcare quality ( $B = .664, p = .000$ ), and management practices and healthcare quality ( $B = .498, p = .000$ ) among HC IIIs. The results thus imply that improvement in conditions associated with timely funding, fund size, results-based incentives, and donor influence will result in considerable positive change in the quality of healthcare delivery at Health facilities. These results are in line with Craig (2017) who argues that results-based factors aim to improve health outcomes for patients, especially in developing nations by providing benefits related to improved healthcare and service delivery (Ergo, Paina, Morgan, & Eichler, 2012). Clarifying important healthcare priorities, such as interventions aiming at achieving Sustainable Development Goals or lowering morbidity and mortality, is necessary before implementing these schemes (Meessen et al., 2011). Also, improvements in the management practice-related factors like activity planning, staffing levels, levels of monitoring, and storage capacity for essential drugs are likely to enhance the healthcare quality service delivery among the health centre HC IIIs that are established in Jinja. Lastly, management practices ( $B = .411, p = .003$ ) positively and significantly moderated the relationship between results-based funding and healthcare quality in terms of reduced patient waiting time and drug stockouts, and the choice of healthcare improvement in quality-of-service delivery. These results provide similar assertions to those of González (2018) that high-quality healthcare is guaranteed by the National Health Sector Quality Improvement Framework and Strategic Plan, which also promotes general well-being that planning, monitoring, staffing levels, and storage can be of great help in healthcare quality (González, 2018).

The research suggests that the RBF programme heads should provide funds to health facilities in time for smoother operations, such as purchasing medicines and medical equipment for mothers and children. The size of the funds should be increased to motivate staff and improve service delivery. Regular monitoring of all activities supported by the RBF programme is recommended to ensure accountability and transparency. The programme should increase staff to facilitate quick service delivery, especially for women during antenatal, postnatal, and delivery. Proper planning for the implementation of activities and funding should be done. Sensitization of patients is also recommended to improve performance and community involvement in healthcare. We suggest further research on the effect of the health systems strengthening project, RBF interventions, and the healthcare package on the healthcare quality of all health facilities all over Uganda.

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