

The Managerial Environment and Operational Performance of Medical Imaging Services in Faith-Based Hospitals in Uganda

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Abstract

This study examines the relationship between the managerial environment and the operational performance of medical imaging services in Christian faith-based hospitals in Uganda, specifically focusing on Mengo Hospital and Uganda Martyrs Hospital Lubaga. The objectives, therefore, involved assessing the influence of selected integrative management aspects, namely, management empowerment, resource allocation, and technological integration on operational performance indicators of equipment utilisation, patient volumes, and patient satisfaction, and Net Promoter Score (NPS). A mixed design methodology was used to collect and analyse expansive and insightful quantitative and qualitative data on the objectives. Findings showed a strong and positive relationship between managerial environment and operational performance of medical imaging services. The NPS survey results indicate a positive but moderate level of patient loyalty, with an overall NPS of 13.8. The findings further revealed the distinct challenges and opportunities in low resource faith-based healthcare settings in Uganda. Recommendations were for improving managerial practices and indicates potential areas for future research.

Keywords

Managerial Environment, Faith-Based Hospitals, Operational Performance, Medical Imaging Services

1. Introduction

An enabling managerial environment is crucial for the operational success of healthcare organisations, regardless of their foundational background principles.

Bakalikwira et al. (2017) This is because hospital environments are usually of

high-level anxiety both from the perspective of patients, their minders and those of the health workers. There is no room for relaxation or error because the consequences can be dire. In faith-based hospitals, integrative organisational management should aim towards balancing mission-driven care with operational effectiveness. This is because faith-based hospitals face unique challenges, including financial constraints and the need to integrate religious values into their operational frameworks [Acar and Acar \(2014\)](#).

The remaining part of the study is structured as follows: Statement of the problem, study objectives, research question, significance of the study, review of literature, research methodology, presentation of results, discussion of results, recommendations and finally the conclusion to the study.

1.1. Statement of the Problem

Two of Uganda's oldest faith-based hospitals, Mengo Hospital and Uganda Martyrs Hospital Lubaga, have struggled more recently even after more than a century of existence. Media and reports have exposed problems, including changing patient numbers, regular equipment failures, and low patient satisfaction. These sometimes lead to resource shortages, long lines and, therefore, extended waiting times. Frequent breakdowns in the equipment mean that patient satisfaction remains below expectations directly resulting from these issues ([Mulengera News, 2022](#); [Observer, 2018](#); [Ministry of Health, 2020](#)).

These hospitals' adherence to their faith-based values, although important for their missions, often makes it challenging for them to compete with other healthcare providers. This study investigates how contextual elements within the internal and external environments affect important facets of hospital operations, including equipment usage, patient numbers, and patient satisfaction with regard to their treatment

Such challenges often have resulted in long queues, overcrowded waiting areas, and resource shortages. The equipment tends to be unreliable with frequent breaks down, and patient satisfaction remains below expectations as a direct result of these challenges ([Mulengera News, 2022](#); [Observer, 2018](#); [Ministry of Health, 2020](#)).

There is therefore a need to examine the role of factors that influence critical indicators of operational performance in the medical imaging services of these hospitals for improved outcomes and continued survival of the hospitals.

1.2. Objectives

The primary objective of this study is to assess how the managerial environment influences the operational performance of medical imaging services in faith-based hospitals. Specifically, it seeks to establish the relationship between integrative managerial strategies and key performance indicators, such as equipment utilisation, patient volumes, and patient satisfaction and Net Promoter Score (NPS).

1.3. Research Question

What is the relationship between integrative management and the operational performance of medical imaging services at Mengo Hospital and Uganda Martyrs Hospital Lubaga?

1.4. Significance of the Study

The study of integrated management factors in context of private not-for-profit, Christian faith-based hospitals, provides hospital administrators and policy makers with management-related operational insights on how to improve the performance of medical imaging services in health facilities. By focusing on the unique environment of Christian faith-based hospitals in Uganda, this research adds to the broader knowledge in the area of healthcare management. It also offers practical recommendations for enhancing service delivery and overall operational effectiveness in these institutions.

2. Literature Review

Several researchers in literature highlight the importance of the managerial environment in shaping healthcare delivery outcomes. Notably, Porter (2010) argued that management practices, especially effective resource allocation and technological advancements, are key in improving hospital efficiency and aligning of the organizational goals with patient care needs. Porter's work highlights how targeted investments in these areas can lead to significant improvements in operational performance, especially in resource-constrained settings. Porter's analysis, however, mainly focused on for-profit healthcare institutions in developed countries. This leaves a gap in understanding how the same principles can apply in faith-based, non-profit hospitals in low-resource settings like Uganda. Mosadeghrad (2014) complemented this view by emphasising the importance of aligning resources with patient needs. His research showed that hospitals that manage resources effectively were better equipped to handle patient volumes and maintain high service quality. Even though Mosadeghrad's findings are highly relevant, they are made from broad analysis point of view of general healthcare systems. This does not fully embrace the unique challenges faced by faith-based hospitals that must integrate religious values with operational efficiency since they depend a lot on the loyalty of communities. There is therefore a need for more focused research on how these management practices can be integrated to faith-based institutions with specific religious and community obligations. Both studies highlighted the critical role of management in fostering operational efficiency and patient satisfaction.

Mubuuke et al. (2019) findings showed suboptimal quality of ultrasound services in Uganda, mainly due to frequent equipment breakdowns and a shortage of trained personnel. This study reveals significant operational challenges within Uganda's healthcare system, especially in medical imaging. Mubuuke et al.

however, did not explore the managerial solutions that can mitigate these issues, such as the role of management in ensuring timely equipment maintenance and staff training. This oversight highlights the need for research that links management practices directly to operational outcomes in medical imaging services.

Similarly, *Bakalikwira et al. (2017)* examined managerial competencies and financial accountability in public hospitals but overlooked the specific context of faith-based institutions. They provided valuable insights into the importance of managerial accountability but overlooked discussion on how these competencies translate to operational performance in settings where religious mission and values play a central role. This limitation highlights the gap in understanding how faith-based hospitals balance constraints with their mission-driven goals, a challenge that this current study seeks to address.

Kawooya et al. (2019, 2022), on the other hand, drew attention to the inadequate quality of radiological services in Uganda and the critical need for improved equipment and policies, particularly in government facilities. Their work spotlighted the broader systemic challenges in Uganda's healthcare sector. Yet again their analysis did not address the unique operational constraints of faith-based hospitals, which so often rely on donations and community support, and therefore must balance religious values with operational demands. This gap shows a need for research that not only identifies operational challenges but also investigates how these institutions can leverage their unique position within the community to enhance service delivery

Literature Gap: The existing literature broadly explores the impact of management practices on healthcare performance, particularly in public and for-profit sectors. However, there is still a significant gap in understanding how these practices operate within the specific context of faith-based hospitals in low-resource settings. Most studies do not address the unique challenges these hospitals face, such as balancing religious missions with operational demands, integrating modern technologies, and optimizing limited resources within a faith-driven framework. This study aims to fill this gap by focusing on how integrative management strategies can enhance the operational performance of medical imaging services in faith-based hospitals in Uganda.

By addressing this gap, the study contributes to the academic discourse and offers practical insights for improving healthcare delivery in similar settings. Specifically, it examines the role of management empowerment, resource allocation, and technological integration in improving key performance indicators such as equipment utilization, patient volumes, and satisfaction.

3. Methodology

3.1. Research Design

This study adopted a mixed-methods approach, combining quantitative and qualitative methods for a deeper understanding of how the managerial environment impacts operational performance. The qualitative aspect offers rich in-

sights from stakeholders, while the quantitative data provides a robust analysis of key metrics.

3.2. Sample Size Calculation

A sample size of 384 participants, including 314 patients and 70 healthcare professionals, was calculated from a targeted population of 1355. We used the [Kish \(1965\)](#) formula to determine an adequate sample size and to ensure representativeness and reliability of findings. The formula used was

$$n = \frac{Z^2 P(1-P)}{d^2}$$

whereby

n sample size,

Z standard normal deviation at 95% confidence level (1.96),

P proportion of the target population (assumed to be 50% or 0.5 for maximum variability),

d acceptable degree of error (5% or 0.05%).

The resultant sample size of 384 was adequate to represent the targeted population within a reasonable margin of error. It was distributed across various respondent categories using census and purposive sampling techniques, ensuring the inclusion of key stakeholders in the hospitals' managerial and operational processes. This approach ensured the mitigation of the risk of sample selection bias, enhancing the reliability of the study's findings in the process.

3.3. Data Collection

Data was collected using structured questionnaires and in-depth interviews. The questionnaires first underwent pre-testing among 20 respondents (10 patients and 10 healthcare professionals), leading to refinements that enhanced clarity and reliability. The instruments were validated using a Content Validity Index (CVI), with an average score of 0.84, surpassing the 0.7 threshold. Reliability was confirmed with Cronbach Alpha coefficients, all exceeding 0.7.

A total of 384 questionnaires were distributed, with 314 for patients and 70 for healthcare professionals. A stratified random sampling technique was employed for patients, ensuring a representative demographic spread. Census and purposive sampling approaches targeted healthcare professionals in key roles. Ultimately, 245 patient questionnaires were returned, achieving a 78.1% response rate, while all 70 healthcare professionals responded, yielding a 100% response rate. An overall response rate of 315 respondents representing 82% overall response rate.

Additionally, 20 key stakeholders were interviewed, and focus group discussions with 10 participants from each hospital provided qualitative data to triangulate findings.

The study pre-tested the questionnaire among a small group of people before

sending it out to the rest of the participants. The researcher first determined the instruments' validity in terms of Content Validity Index (CVI) with the consideration of the relevant items contained in the research instrument using the following formula. Experts' opinions were sought through involvement in the computation of the CVI for the research instruments with the results presented in the following **Table 1**.

Table 1. Experts' computations for content validity indices.

s/n	Expert	Content Validity Index	Percentage (%)
1	Expert No.1	0.84	84
2	Expert N0.2	0.82	82
3	Expert No.3	0.85	85
4	Expert No.4	0.80	80
	Average	0.83	83

Source: Primary Source (2022).

The results reveal a CVI of 0.83, which is much above 0.7, rendering the instrument valid for the research

3.4. Generalisability

Even though this study focused only on two Christian faith-based hospitals namely, MH and UMHL, its findings nevertheless provide valuable understanding of the managerial dynamics in general faith-based and none faith-based healthcare settings. In order to address any potential concerns about generalisability, we acknowledge that further research involving more diverse hospitals from different founding backgrounds, including public and private institutions, is needed. This can help validate and expand upon the findings, offering a more comprehensive understanding of managerial influences across different healthcare settings.

3.5. Results

3.5.1. Characteristics of Respondents

Finding from **Table 2**, The respondent demographics revealed that 97.5% were over 25 years old, implying a mature and experienced sample. The gender distribution was more even with 49% female and 51% male. Most healthcare professionals respondents had more than five years of experience, implying an experienced workforce. The table reveals a demographic representation that supports the reliability of the overall study findings. This is because it encompasses a broad spectrum of the population, which enhances the generalisability of the findings.

To determine the relationships between integrative managerial factors and

operational performance indicators, we used descriptive statistics from the managerial environment findings (Table 3 and Table 4) then statistics on the level of operational performance (Table 4 and Table 5).

Table 2. Demographic characteristics of respondents.

Aspect	Frequency	Percentage
Age Category		
18 to 25	72	22.9%
26 to 30	89	28.2%
31 to 40	79	25.1%
41 to 50	43	13.7%
51 and above	32	10.2%
Gender		
Female	160	50.8%
Male	155	49.2%
Highest Level of Education		
O & A Level	58	18.4%
Diploma	112	35.6%
Bachelors	95	30.2%
Masters	44	14.0%
Ph.D.	6	1.9%

Source: Primary data.

Table 3. Mean range and its interpretation.

Mean Range	Interpretation
4.20 - 4.99	Very good managerial environment
3.40 - 4.19	Good managerial environment
2.60 - 3.39	Moderate managerial environment
1.80 - 2.59	Poor managerial environment
1.0 - 1.79	Very poor managerial environment

Source: Primary data.

3.5.2. Managerial Environment

From Table 3 and Table 4, the analysis of the management environment in Mengo Hospital (MH) and Uganda Martyrs' Hospital Lubaga (UMHL) is revealed to be good, with a combined mean score of 3.4. This suggests that the managerial environment in these hospitals is functional but has room for improvement.

3.5.3. Level of Operational Performance

The indicators values in **Table 5** were generated from Equipment utilisation through as metric score, patient volumes through a simple count of patient examinations and patient satisfaction through perceptions survey results. The results also show that both equipment utilisation and patient volumes were at high levels, and patient satisfaction was also strong. However, Mengo Hospital generally performed better than Uganda Martyrs Hospital Lubaga across the board.

Table 6 provides a framework for interpreting the mean values assigned to various aspects of operational performance in medical imaging services. The mean ranges are used to categorize the performance levels, giving a clearer understanding of how well different elements are performing based on their numerical scores.

Table 4. Managerial Environment Mean Scores for Mengo Hospital and Uganda Martyrs' Hospital Lubaga and Grand Mean.

Item	MH Mean Score	UMHL Mean Score	Combined Mean
Management Empowerment	3.6	3.4	3.5
Resource Allocation	3.2	3.4	3.3
Collaboration and Teamwork	3.7	3.5	3.6
Training and Professional Development	3.4	3.3	3.37
Communication	3.5	3.1	3.3
Technological Integration	3.3	3.2	3.3
Grand Mean	3.45	3.32	3.4

Source: Primary data (2022).

Table 5. Operational performance indicators.

Indicator	MH	UMHL	Combined
Equipment Utilisation Score	4.4	3.8	4.1
Patient examination Volumes (daily average)	150	100	250
Patient Satisfaction Score	4.2	3.8	4.0

Table 6. Mean range and its interpretation for the level of operational performance.

Mean Range	Interpretation
4.20 - 4.99	Very good performance
3.40 - 4.19	Good performance
2.60 - 3.39	Moderate performance
1.80 - 2.59	Poor performance
1.0 - 1.79	Very poor performance

Source: Primary data (2022).

Table 7 shows that Mengo Hospital and Uganda Martyrs' Hospital Lubaga exhibit strong operational performance in key areas, with particular strengths in equipment management and patient handling and satisfaction.

Table 7. Summary of the level of Operational Performance of Medical Imaging Services in Mengo Hospital and Uganda Martyrs' Hospital Lubaga

ITEM	MEAN	SD	Interpretation
Equipment Utilisation and Maintenance	4.4	0.76	Very high level of performance
Patient Volumes Perceptions	3.8	0.96	High level of performance
Patient Handling and Satisfaction	4.2	0.72	High level of performance
Grand Mean/Grand Standard Deviation	4.13	0.81	High level of performance

Source: Primary data, 2022.

3.5.4. Net Promoter Score (NPS)

In order to understand the overall patient loyalty and willingness to return or recommend the medical imaging services, a NPS survey was conducted among the 380 patients, (190 respondents from each hospital). The results were analyzed show that the final combined NPS score for both hospitals was 13.8, reflecting a moderate level of patient loyalty.

Mengo Hospital (MH) NPS yielded a score of 13.8, with 44% of respondents identified as Promoters and 30.2% as Detractors. The reliability of services was noted as a key factor influencing patient loyalty at MH.

Uganda Martyrs Hospital Lubaga (UMHL) NPS also yielded a score of 13.8, with 45% of respondents identified as Promoters and 31.2% as Detractors. The strong religious loyalty among patients at UMHL was a significant factor contributing to their willingness to recommend the hospital.

The NPS results highlight that while both hospitals have similar overall NPS scores, the factors driving patient loyalty differ slightly. MH's edge in service reliability balances UMHL's stronger religious loyalty among patients, resulting in negligible differences in their NPS scores

3.6. Relationship between Managerial Environment and Operational Performance

We conducted both correlation and regression analyses. The correlation analysis (**Table 8**) shows significant positive relationships between managerial environment variables and operational performance metrics, including equipment utilization, patient volumes, and patient satisfaction.

Correlation Analysis: The correlation analysis (**Table 4**) shows significant positive relationships between managerial environment factors and operational performance indicators. For instance, management empowerment demonstrated

Table 8. Correlation analysis.

Managerial Environment Variable	Equipment Utilization	Patient Volumes	Patient Satisfaction
Management Empowerment	$r = 0.67, p < 0.01$	$r = 0.54, p < 0.01$	$r = 0.62, p < 0.01$
Resource Allocation	$r = 0.72, p < 0.01$	$r = 0.58, p < 0.01$	$r = 0.65, p < 0.01$
Technological Integration	$r = 0.64, p < 0.01$	$r = 0.57, p < 0.01$	$r = 0.66, p < 0.01$

a strong correlation with equipment utilization ($r = 0.67, p < 0.01$), patient volumes ($r = 0.54, p < 0.01$), and patient satisfaction ($r = 0.62, p < 0.01$). Similarly, resource allocation showed even higher correlations with these operational performance indicators, particularly with equipment utilization ($r = 0.72, p < 0.01$) and patient satisfaction ($r = 0.65, p < 0.01$). Technological integration also correlated positively with all three operational metrics, confirming the importance of updated technology in service delivery.

Table 9. Regression analysis results.

Predictor Variable	Coefficient (β)	Standard Error	t-value	p-value
Management Empowerment	0.21	0.08	2.63	0.011*
Resource Allocation	0.35	0.07	5.00	0.001*
Technological Integration	0.32	0.09	3.56	0.001*
Intercept	1.75	0.30	5.83	0.001*

Regression Analysis: The regression analysis (**Table 9**) further supports these findings, indicating that resource allocation ($\beta = 0.35, p = 0.001$) and technological integration ($\beta = 0.32, p = 0.001$) are significant predictors of operational performance, explaining a substantial portion of the variance in patient satisfaction and equipment utilization. These results highlight the critical role of management in driving operational efficiency and improving patient outcomes.

Additionally, through interviews, the study got valuable insights into the role of management empowerment in effective decision-making. A radiologist at Menngo Hospital shared that, “*When management is empowered, decisions can be made quickly, especially in emergencies, which greatly improves patient care.*” However, not all findings were as positive. Challenges, such as limited resources and communication gaps were reported. For example, a department head expressed sentiments over budget constraints, saying, “*Our tight budget often restricts our ability to upgrade equipment or invest in staff training, which ultimately impacts the quality of our services.*”

These findings underscore the crucial role of integrative management practices in enhancing the operational performance of medical imaging services in faith-based hospitals. They also validate the hypothesis that effective management, especially in resource allocation and technological integration, signifi-

cantly contributes to better equipment utilization, higher patient volumes, and improved patient satisfaction.

4. Limitations and Future Research

While this study provides valuable insights, it is limited by its focus on only two hospitals. Future research should explore a broader range of faith-based and non-faith-based hospitals to validate the findings. Additionally, investigating the influence of external regulatory environments on operational performance could offer a more comprehensive understanding of the challenges faced by these institutions.

5. Discussion

This study findings highlight the importance of a supportive managerial environment in improving the medical imaging services and overall operational performance of faith-based hospitals like Mengo Hospital and Uganda Martyrs' Hospital Lubaga. The researchers found that the key areas for effective influence by integrative management were within resource allocation, ongoing professional development, and the adoption of modern technologies. These insights align with broader healthcare management literature like Mosadeghrad's (2014) emphasis on management practices as crucial for improving hospital performance.

Faith-based hospitals, with their unique blend of mission-driven care and financial limitations, face specific challenges and opportunities arising directly out of their historical founding. This study findings affirm the importance of these institutions embracing flexible and innovative management strategies to successfully navigate their distinctive operational environments. This helps them retain the loyalty status they enjoy despite the increasingly congested competition landscape. Patient satisfaction, reflected in a moderate Net Promoter Score (NPS) of 13.8, indicates balanced patient loyalty across both hospitals. This suggests that despite challenges such as equipment reliability, the integration of faith-based values and consistent service quality positively influence patient experiences.

Addressing these operational challenges through targeted management strategies, as outlined in the Ministry of Health Annual Report (2020), is important for improving outcomes and ensuring the sustainability of faith-based healthcare institutions.

6. Addressing Gaps

This study helps fill in the gaps in Management Strategies in Faith-Based Hospitals.

While studies by Porter (2010) and Mosadeghrad (2014) established the importance of strategic management and resource alignment in healthcare, they primarily focused on for-profit and general healthcare settings. This study on the other hand, extends these findings to faith-based hospitals in low-resource environments, showing that targeted management practices like resource allocation

and technological integration are equally important for operational success in these contexts. The findings of strong correlations between these factors and key operational metrics, in this study confirms the applicability of these management strategies in faith-driven, non-profit healthcare settings.

While [Mubuuke et al. \(2019\)](#) identified challenges such as equipment breakdowns and personnel shortages in Uganda's healthcare system they did not explore management's role in mitigating these issues. Our study bridges that gap by highlighting how management empowerment and continuous professional development can directly improve equipment utilization and patient satisfaction. These findings suggest that effective management can counteract the operational challenges previously noted in Uganda's medical imaging services.

Finally, this study highlights the importance of these faith-based hospitals for cultivating the ability to integrate Mission-driven goals with operational demands. Previous local research by [Bakalikwira et al. \(2017\)](#) and [Kawooya et al. \(2019, 2022\)](#) emphasized the need for managerial accountability and better policies but did not address the need for balancing their religious missions with operational efficiency. This study provides evidence that through integrative management practices, faith-based hospitals can seamlessly maintain their mission-driven focus while enhancing operational performance. The moderate Net Promoter Score (NPS) of 13.8 across both hospitals indicates that religious values and reliable service delivery can coexist to foster patient loyalty and satisfaction.

Recommendations Based on the findings, recommendations for this study are for these hospitals to focus on empowering their caret teams and prioritise continuous training, pragmatic resource allocation, particularly for technology integration. By adopting these integrative management strategies, healthcare administrators can significantly improve operational efficiency and patient outcomes, ultimately leading to a higher quality of care.

7. Conclusion

This study confirms that the managerial environment significantly influences the operational performance of medical imaging services in faith-based hospitals like Mengo Hospital and Uganda Martyrs Hospital Lubaga. Key factors like management empowerment, resource allocation, professional development, and technological integration were found to strongly impact equipment utilization, patient volumes, and satisfaction.

Regression analysis further confirmed that resource allocation and technological integration are critical drivers of performance. Qualitative insights also emphasized the importance of leadership, communication, and professional development in enhancing service delivery.

This research helps fill a critical gap through focus on internal management practices within faith-based hospitals in low-resource settings, offering actionable recommendations for healthcare administrators. Prioritizing strategic resource allocation, collaboration, and technological advancements significantly

improves operational performance and patient outcomes. Future studies should therefore explore the impact of external regulatory environments and competition on hospital performance, providing a comprehensive understanding of optimizing healthcare management across diverse settings.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Acar, A. Z., & Acar, P. (2014). Organizational Culture Types and Their Effects on Organizational Performance in Turkish Hospitals. *EMAJ: Emerging Markets Journal*, 3, 18-31. <https://doi.org/10.5195/emaj.2014.47>
- Bakalikwira, L., Bananuka, J., Kaawaase Kigongo, T., Musimenta, D., & Mukyala, V. (2017). Accountability in the Public Health Care Systems: A Developing Economy Perspective. *Cogent Business & Management*, 4, 1334995. <https://doi.org/10.1080/23311975.2017.1334995>
- Kawooya, M. G., Lubega, S., & Mugisha, J. O. (2019). Quality of radiological services in Uganda: A survey of facilities. *BMC Health Services Research*, 19, Article No. 609. <https://doi.org/10.1186/s12913-019-4389-z>
- Kawooya, M., Kitembo, H., & Malumba, R. (2022). An Africa Point of View on Quality and Safety in Imaging. *Insights into Imaging*, 13, Article No. 58. <https://doi.org/10.1186/s13244-022-01184-w>
- Kish, L. (1965). Sampling Organizations and Groups of Unequal Sizes. *American Sociological Review*, 564-572.
- Ministry of Health Annual Report (2020). *Healthcare Performance Report*. Ministry of Health, Uganda.
- Ministry of Health, Uganda. (2020). *Annual Health Sector Performance Report: FY 2019/20*. Ministry of Health.
- Mosadeghrad, A. M. (2014). Factors Influencing Healthcare Service Quality. *International Journal of Health Policy and Management*, 3, 77-89. <https://doi.org/10.15171/ijhpm.2014.65>
- Mubuuke, A. G., Kitembo, P. A., Kabagambe, S. K., & Galukande, M. (2019). Evaluation of ultrasound services in Uganda: A survey of Ultrasound Equipment, Personnel, Facility Operations, and Image Quality. *Journal of Clinical Ultrasound*, 47, 19-27.
- Mulengera News (2022). Young Mother Sues Mengo Hospital Demanding Billions over Bungled up Child Birth. <https://mulengera.com/young-mother-sues-mengo-hospital-demanding-billions-over-bungled-up-child-birth/>
- Observer (2018). Challenges in Uganda's Healthcare System. <https://observer.ug/viewpoint/56913-your-mail-an-ethical-dilemma-could-have-killed-mowzey-radio>
- Porter, M. E. (2010). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press.

Appendices

Appendix A: Questionnaire and Interview Guide

Questionnaire Structure:

This involved the following sections

1. Demographic Information
2. Managerial Environment (Management Empowerment, Resource Allocation, Technological Integration)
3. Operational Performance Indicators (Equipment Utilization, Patient Volumes, Patient Satisfaction)

Interview Guide:

1. Describe your experience with the management of the medical imaging department.
2. How does resource allocation affect your daily operations?
3. What challenges do you face in integrating new technologies?
4. How does management empower the staff?
5. Can you provide examples of how management practices have influenced patient satisfaction?

Appendix B. Patient Net Promoter Score Survey

PATIENT NUMBER..... DATE.....

How likely is it that you would recommend the medical imaging services received today to a friend or colleague?

- 10 Extremely Likely
- 9
- 8
- 7
- 6
- 5
- 4
- 3
- 2
- 1
- 0 Not at all likely

Which part or parts of our service greatly influenced your choice? Please tick one or several

- 1. Don't know anyone else who offers the type of services.
- 2. I always receive my services here no matter what.
- 3. Was recommended by my referring Doctor.
- 4. I chose this hospital because of my religious affiliation.
- 5. I chose this hospital because of its reputation for reliable services
- 6. The customer care before, during, and after the examination
- 7. I simply found it more convenient to receive the services here.
- 8. I don't care I just needed a service.re I just needed a service.