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Service Provider Competence, Motivation, and Resource Availability as Determinants of Quality Healthcare Delivery: A Cross-Sectional Study at Makeni Regional Hospital, Sierra Leone

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Abstract

Quality healthcare delivery in low- and middle-income countries remains constrained by workforce and resource limitations. This study assessed service provider competence, service provider motivation, and resource availability as determinants of quality healthcare delivery at Makeni Regional Hospital in Northern Sierra Leone, from the service providers' own perspective. A cross-sectional study, descriptive in type, was conducted among 155 service providers, with sample size determined using the Yamane formula. Structured questionnaires were administered and analyzed using STATA to assess the relationship between competence, motivation, resource availability, and quality healthcare delivery. Most service providers (74.8%) reported possessing the required professional skills, and 91.6% perceived that competent staff resulted in improved delivery of quality healthcare; 94.8% associated competent personnel with improved patient outcomes. Motivation levels were markedly lower: only 7.1% of respondents were highly motivated, 16.1% were motivated, and 40.7% were somewhat motivated, while all respondents (100%) agreed that motivation influences quality of care delivery. Resource availability showed the strongest association with quality outcomes, with 99.4% of respondents affirming that adequate resources affect quality healthcare delivery and 95.5% affirming that adequate resources result in improved delivery of quality healthcare. Gaps were noted in bed capacity (45.8% reporting inadequacy) and equipment. Service provider competence, motivation, and resource availability were all found to significantly determine the delivery of quality healthcare at Makeni Regional Hospital, with motivation representing the weakest of the three despite high levels of provider competence. Continuous professional development, formal motivation policies, and improved resource allocation are recommended to strengthen quality healthcare delivery.

Keywords: Healthcare Delivery, Provider Competency, Provider Motivation, Resource Availability, Makeni Regional Hospital, City of Makeni, and Sierra Leone.

Abbreviations

DHS – Demographic Health Survey
FHCI – Free Health Care Initiative
HRIS – Human Resource Information System
LMCs – Low-Middle-Income Countries
MDG – Millennium Development Goal
MoHS – Ministry of Health and Sanitation
MoHSS – Ministry of Health and Social Security

1. Introduction

Quality healthcare service encompasses the scope of medical services provided, staff clinical competence, hospital amenities, physician expertise, hospital ambiance, staff behavior, in-patient experience, and, most importantly, patient satisfaction [1]. The World Health Organization defines quality of care as the degree to which health services for individuals and populations promote desired health outcomes and are equitable, timely, effective, safe, and people-centered [2]. The Institute of Medicine similarly frames quality as the extent to which health services increase the likelihood of desired health outcomes and remain consistent with current professional knowledge, identifying safety, patient experience, effectiveness, efficiency, equity, and timeliness as its core dimensions [3].

Despite decades of accumulated global expertise on improving healthcare standards, policymakers in both high- and low-income countries continue to struggle to identify which quality-focused policies most improve health system outcomes, and significant variation in care standards persists even where systems are well resourced [4]. This gap is most pronounced in Africa, which carries roughly 25% of the global disease burden yet holds only about 3% of the world's health workforce; the continent's health-worker density is estimated at 2.3 per 1,000 population, compared with 24.8 per 1,000 in the Americas [5]. Human resources for health are widely regarded as the most valuable, and most fragile, input into any health system [6].

Sierra Leone illustrates these constraints acutely. The country ranked fourth from last among 49 prioritized low- and middle-income countries in skilled health worker density as of 2010, and the 2014-2015 Ebola Virus Disease outbreak claimed the lives of 221 healthcare workers, further weakening an already fragile workforce [7]. Beyond staffing numbers, low provider motivation has been linked to patient irritability, absenteeism, long waiting times, informal fee charging, and labour unrest, while providers working in rural Sierra Leone report unfavorable working conditions, limited access to training, long working hours due to staff shortages, and restricted income-generating opportunities as key demotivating factors [5,8].

The Government of Sierra Leone introduced the Free Health Care Initiative (FHCI) in 2010 to remove user fees for pregnant women, nursing mothers, and children under five, in response to persistently high maternal and child mortality [9]. Even after the FHCI, Sierra Leone recorded the world's highest maternal mortality ratio, at 1,360 deaths per 100,000 live births in 2015 (WHO, 2021), and fell short of the MDG4 and MDG5 targets of 450 maternal deaths per 100,000 births and 95 infant deaths per 1,000 live births [10,11]. National survey data show a 2018 public perception of long wait times and widespread informal payment for care, disproportionately affecting poorer and less-educated citizens while Demographic and Health Survey trends show under-5, infant, and neonatal mortality falling between 2013 and 2019 but remaining well above global benchmarks [12,13].

1.1. Our Motivation

Against this backdrop, this study investigated the factors affecting the delivery of quality healthcare at Makeni Regional Hospital, a referral hospital serving approximately 1.7 million people in Northern Sierra Leone, viewed from the perspective of its own service providers.

Our specific objectives were to assess whether service provider competence, service provider motivation, and the availability of resources affect the delivery of quality healthcare at the hospital.

2. Methodology

2.1. Study Design and Setting

This was a cross-sectional, descriptive study conducted at Makeni Regional Hospital, a referral hospital in Makeni, the largest city in Sierra Leone's Northern Province. The hospital serves residents of Bombali District, including Makeni itself, as well as patients referred from district hospitals across the Northern and North-West Provinces.

2.2. Study Population and Sample

The study population comprised 210 clinical and administrative staff providing services at the hospital. The sample size for the quantitative component was determined using the Yamane formula at a 95% confidence level and 0.05 margin of error, yielding 138 respondents, which was increased to 155 to account for a projected 12% non-response rate. Proportional sampling, a form of stratified

sampling, was used to draw respondents across the different cadres of healthcare providers in proportion to their representation in the study population. Providers who presented for duty during the data collection period and consented to participate were recruited.

2.3. Data Collection

Primary quantitative data were collected using a structured questionnaire administered by trained data collectors over a three-week period, from 5 to 23 December 2022, across morning, afternoon, and night shifts to capture staff working all three shifts. The questionnaire comprised four sections:

- Section A captured demographic data,
- Sections B, C, and D addressed healthcare provider competence, provider motivation,
- and resource availability in relation to the delivery of quality healthcare.

Our instrument was reviewed by public health and medical experts and revised in consultation with the study supervisor to establish content validity, and its reliability was assessed through a pilot survey that led to the removal of ambiguous items.

2.4. Eligibility Criteria

All clinical and administrative staff actively working at the hospital – who gave clear informed consent – were eligible for inclusion. Non-clinical support staff (porters, cleaners, mortuary attendants, cooks), students on internship or rotation, visiting healthcare workers, and individuals who declined or withdrew consent were excluded.

2.5. Ethical Considerations

Ethical approval to conduct the study was obtained through the Department of Public Health, University of Makeni, and the

Medical Superintendent of Makeni Regional Hospital granted permission. The purpose of the study was explained to all prospective respondents, and informed consent was obtained after assuring participants that their responses would be used solely for academic purposes and treated as strictly confidential. Participation was voluntary throughout.

2.6. Data Analysis

Quantitative data were analyzed using STATA. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were generated to characterize the sample and to summarize responses on competence, motivation, resource availability, and their perceived positive and negative impacts on quality healthcare delivery.

3. Results

3.1. Demographic Characteristics

Of the 155 respondents, 61.3% were female and 38.7% were male. More than half (52.3%) were aged 30-39 years, 26.5% were 20-29 years, 14.2% were 40-49 years, and 7.1% were 50 years and above. Slightly more respondents identified as Muslim (53.0%) than Christian (47.1%).

Most respondents (55.5%) had 1-5 years of service, 31.0% had 6-10 years, 7.7% had 11-15 years, and 5.8% had 16 years or more. The majority were married (55.5%), 44.0% were single, and 0.65% were widowed.

Nurses formed the largest professional cadre (66.5%), followed by laboratory scientists/technicians (13.6%); the remaining cadres (CHOs, pharmacists, physician assistants, medical doctors, administrative staff, radiographers, and others) each accounted for less than 5% of respondents. Most respondents (67.7%) held pin-coded (permanent) positions, while 32.3% were volunteers.

Variable	Frequency (n=155)	Percentage (%)	Mean	SD
Gender of Respondents				
Female	95	61.29		
Male	60	38.71		
Age of Respondents				
20-29 Yrs	41	26.45	34.98	0.59381
30-39 Yrs	81	52.26		
40-49 Yrs	22	14.19		
50 Yrs and above	11	7.1		
Religion of Respondents				
Christianity	73	47.1		
Islam	82	52.9		
Length of years of service				
1-5 Yrs	86	55.48	6.2	0.36994
6-10 Yrs	48	30.97		
11-15 Yrs	12	7.74		
16 Yrs and above	9	5.81		
Marital Status				
Married	86	55.48		
Single	68	43.87		
Widow/er	1	0.65		
Professional Cadre				
Administrative staff	3	1.94		
CHO	6	3.87		
Laboratory Scientist/Technician	21	13.55		
Medical Doctor	4	2.58		
Nurse	103	66.45		
Others (Specify)	7	4.52		
Pharmacist/technician	5	3.23		
Physician Assistant	4	2.58		
Ultrasound Technician/Radiographer	2	1.29		
Current Employment status				
Pin Coded	105	67.74		
Volunteer	50	32.26		
<i>Source: Field Data (Lebbe).</i>				

Table 1: Demographic Characteristics of Respondents

Service Provider Competence and Quality Healthcare Delivery

Most respondents (74.8%) reported possessing the required professional skills for their role, and 78.1% perceived that their facility was providing quality healthcare.

About two-thirds (67.1%) felt that patients accessed quality health services easily.

Regarding perceived staff competence:

- > 73.6% described their departmental staff as competent,
- > 18.1% as very competent,

- > 1.9% as not competent,
- > 6.5% did not know.

For the perceived positive impacts of competent personnel:

- > 94.8% associated competence with improved patient outcomes,
- > 91.2% with improved delivery of quality healthcare
- > 77.4 with effective use of resources,
- > 56.8% with increased service utilization,
- > 39.4% with self-fulfillment as a provider.

Conversely, on the perceived negative impacts of incompetence,

90.3% associated incompetent staff with poor quality healthcare delivery, 89.7% with poor patient outcomes, 71.7% with inefficient use of resources, and 57.4% with reduced service utilization.

Variable	Frequency (n=155)	Percentage (%)
Personnel have the required professional skills		
No	39	25.16
Yes	116	74.84
Perceived that the facility is providing quality healthcare		
No	34	21.94
Yes	121	78.06
Patients access quality health service easily		
No	51	32.9
Yes	104	67.1
Competency of staff in the facility		
Competent	114	73.55
I don't know	10	6.45
Not competent	3	1.94
Very competent	28	18.06
Perceived Positive Impacts of Staff Incompetence on Delivery of Quality Healthcare Delivery at the Makeni Regional Hospital		
Improve patient outcome		
No	8	5.16
Yes	147	94.84
Effective use of Resources		
No	35	22.58
Yes	120	77.42
Quality healthcare delivery		
No	13	8.39
Yes	142	91.61
Increase service utilization		
No	67	43.23
Yes	88	56.77
Self-fulfilment as a provider		
No	94	60.65
Yes	61	39.35
Perceived Negative Impacts of Staff Incompetence on Delivery of Quality Healthcare Delivery at the Makeni Regional Hospital		
Poor patient outcome		
No	16	10.32
Yes	139	89.68
Inefficient use of resources		
No	44	28.39
Yes	111	71.61
Poor quality healthcare delivery		
No	15	9.68
Yes	140	90.32
Reduce service utilization		
No	66	42.58
Yes	89	57.42

Table 2: Service Provider Competence and Quality Healthcare Delivery (n = 155)

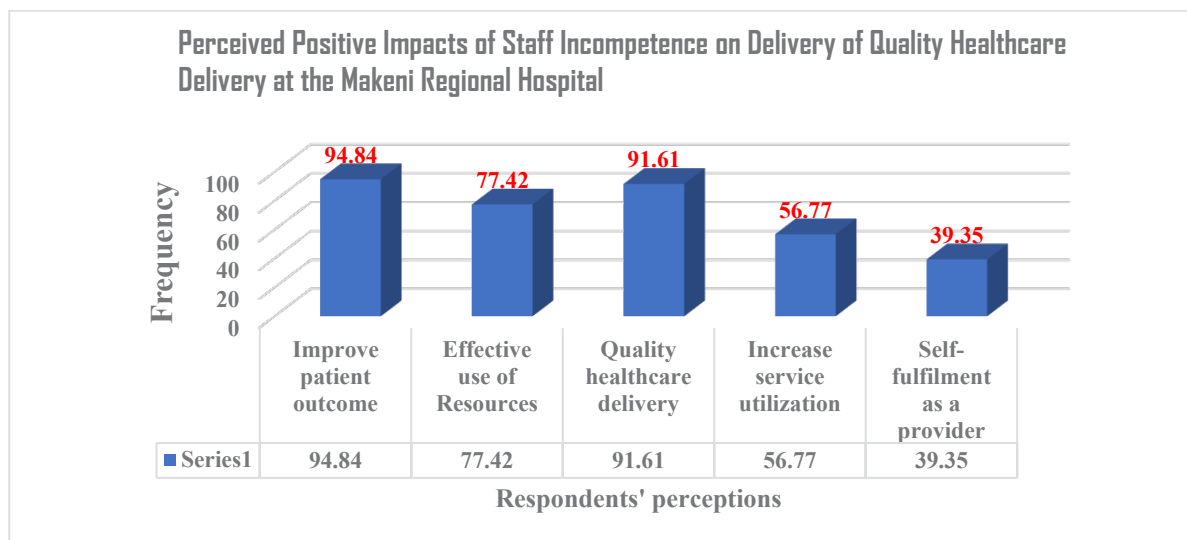


Figure 1: Perceived Positive Impacts of Staff Incompetence on Delivery of Quality Healthcare Delivery at the Makeni Regional Hospital

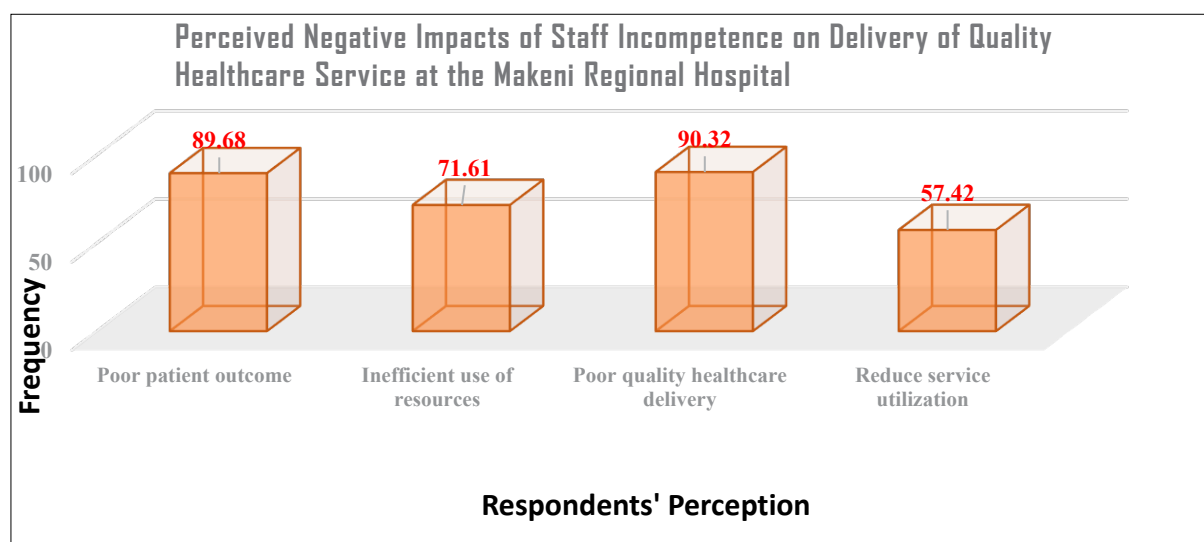


Figure 2: Perceived Negative Impacts of Staff Incompetence on Delivery of Quality Healthcare Service at the Makeni Regional Hospital

Service Provider Motivation and Quality Healthcare Delivery

Motivation levels were markedly lower than competence levels:

- > only 7.1% of respondents reported being highly motivated,
- > 16.1% motivated,
- > 40.7% somewhat motivated,
- > 36.1% not well motivated.

Among forms of motivation available to staff, 64.5% cited finance, 67.7 cited job satisfaction, 64.5% cited accommodation, and 38.7% cited in-service training. All respondents (100%) agreed

that motivation influences the quality of healthcare delivery.

Regarding the positive impacts of motivation, 96.1% of respondents associated motivated staff with quality healthcare delivery, 95.5% with improved patient outcomes, 77.4% with efficient use of resources, 69.7% with better service utilization, and 43.9% with self-fulfillment.

On the negative impacts of low motivation, 94.2% associated lack of motivation with poor quality healthcare delivery, 93.6% with poor patient outcomes, 76.8% with inefficient use of resources, and 63.2% with reduced service utilization.

Variable	Frequency (n=155)	Percentage (%)
Perceived level of motivation		
Highly motivated	11	7.1
Motivated	25	16.13
Not well motivated	56	36.13
Somewhat motivated	63	40.65
Different forms of motivation (Multiple responses) Finance as a form motivation		
No	55	35.48
Yes	100	64.52
Job satisfaction as a form of motivation		
No	50	32.26
Yes	105	67.74
Accommodation as a form of motivation		
No	100	64.52
Yes	55	35.48
In-service Training as a form of motivation		
No	95	61.29
Yes	60	38.71
Motivation leading to quality of healthcare delivery		
No	0	0
Yes	155	100
Positive impacts of staff motivation on delivery of quality healthcare at Makeni regional hospital Improve patient outcome		
No	7	4.52
Yes	148	95.48
Efficient use of resource		
No	35	22.58
Yes	120	77.42
Quality healthcare delivery		
No	6	3.87
Yes	149	96.13
Better service utilization		
No	47	30.32
Yes	108	69.68
Self-fulfilment as a service provider		
No	87	56.13
Yes	68	43.87
Negative impacts of lack of staff motivation on delivery of quality healthcare at the Makeni regional hospital Poor patient outcome		
No	10	6.45
Yes	145	93.55
Inefficient use of resources		
No	36	23.23
Yes	119	76.77
Poor quality healthcare delivery		
No	9	5.81
Yes	146	94.19
Reduce service utilization		
No	57	36.77
Yes	98	63.23

Table 3: Service Provider Motivation and Quality Healthcare Delivery (n = 155)

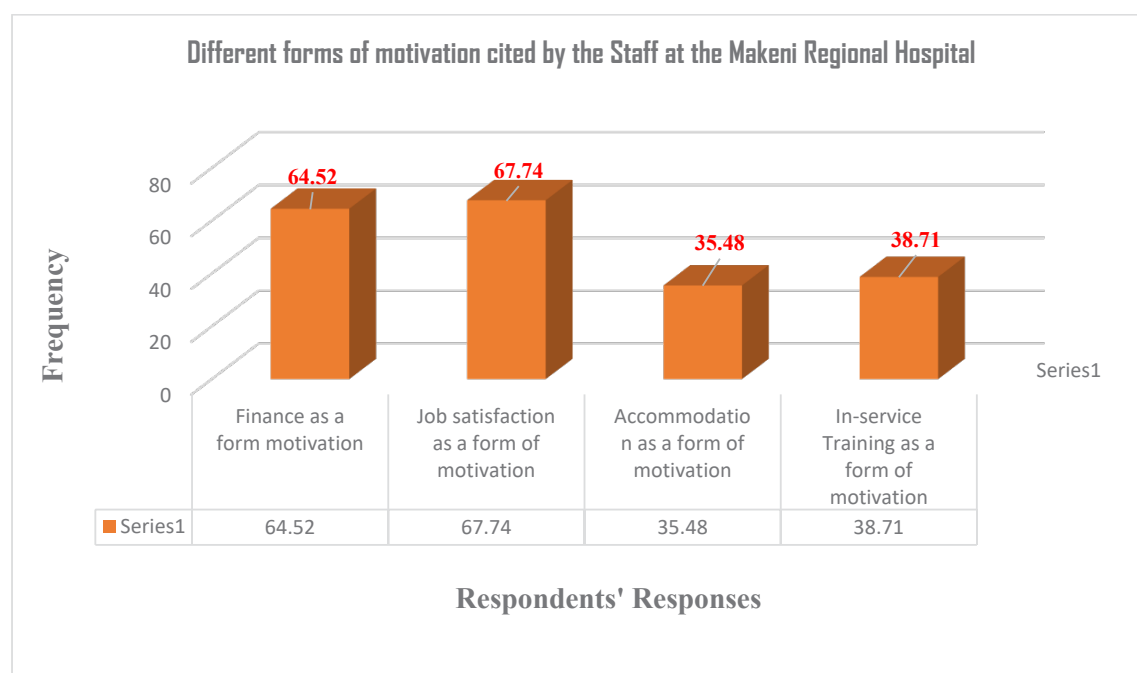


Figure 3: Different Forms of Motivation Cited by Staff at the Makeni Regional Hospital

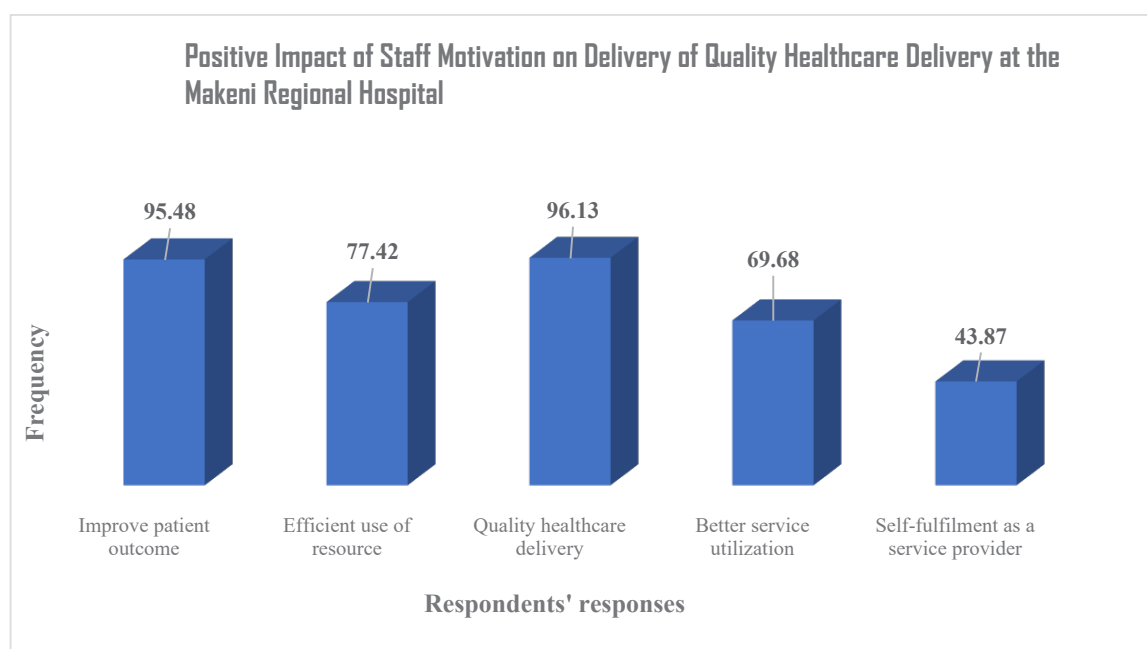


Figure 4: Positive Impact of Staff Motivation on Delivery of Quality Healthcare Delivery at the Makeni Regional Hospital

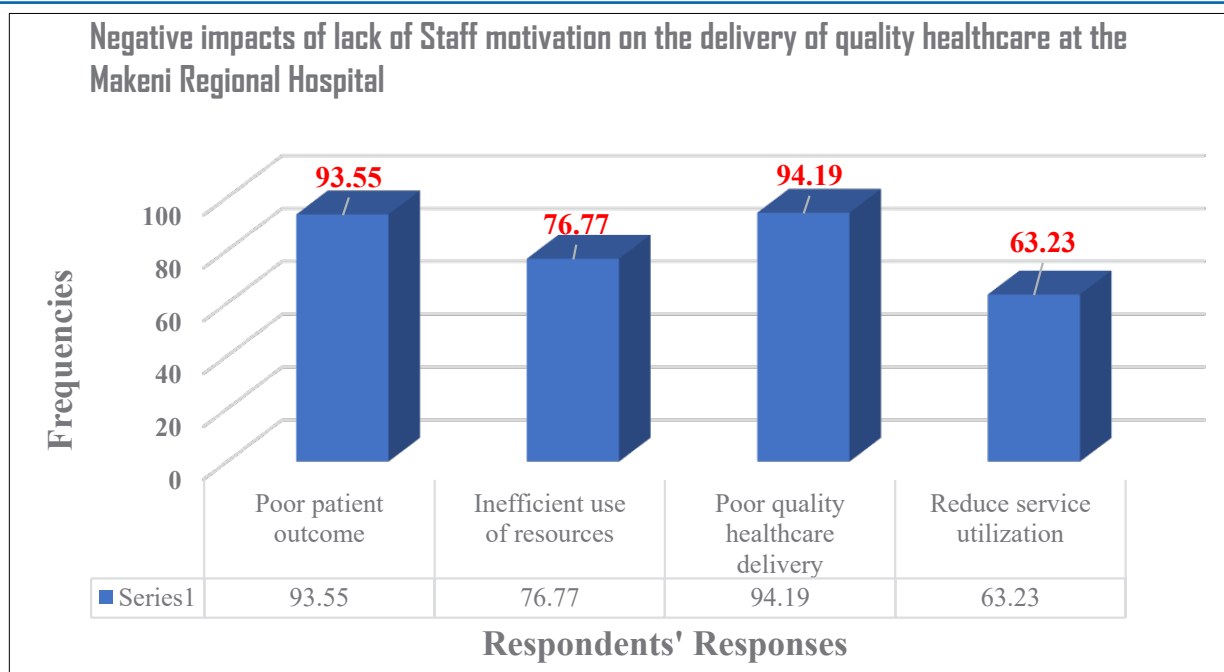


Figure 5: Negative Impact Staff Motivation on Delivery of Quality Healthcare Delivery at the Makeni Regional Hospital

Resource Availability and Quality Healthcare Delivery

Resource adequacy varied by category. Overall resource availability was rated adequate by 32.3% of respondents and highly adequate by 22.6%, while 21.3% rated it inadequate and 18.1% grossly inadequate.

Bed capacity was rated inadequate by 45.8% and grossly inadequate by 9.0%, compared with 25.2% adequate.

Equipment adequacy was more favorably rated, with 47.1% describing it as adequate and 17.4% as highly adequate, although 18.7% rated it inadequate and 16.1% grossly inadequate.

Information technology infrastructure showed the greatest reported deficit, with 40% of respondents rating it grossly inadequate and only 38.1% rating it adequate.

Resource availability showed the strongest and most consistent association with quality healthcare delivery of the three factors examined: 99.4% of respondents agreed that adequate resources affect quality healthcare delivery.

The specific positive impacts of resource availability were:

- > 97.4% associated adequate resources with improved patient outcomes.
- > 95.5% with improved delivery of quality healthcare.
- > 83.2% with better service utilization.
- > 54.9% with self-fulfillment as a provider.

For negative impacts of inadequate resources, 98.7% associated inadequate resources with poor quality healthcare delivery, 94.2% with poor patient outcomes, and 84.6% with reduced service utilization.

Variable	Frequency (n=155)	Percentage (%)
Adequacy of human resource		
Inadequate	33	21.29
Grossly inadequate	28	18.06
Neutral	9	5.81
Adequate	50	32.26
Highly Adequate	35	22.58
Adequacy of bed capacity		
Inadequate	71	45.81
Grossly inadequate	14	9.03
Neutral	31	20
Adequate	39	25.16
Adequacy of equipment		
Inadequate	29	18.71
Grossly inadequate	25	16.13
Neutral	1	0.65
Adequate	73	47.1
Highly Adequate	27	17.42
Adequacy of information technology		
Inadequate	15	9.68
Grossly inadequate	62	40
Neutral	3	1.94
Adequate	59	38.06
Highly Adequate	16	10.32
Adequate Resources have an impact on quality healthcare delivery		
No	1	0.65
Yes	154	99.35
Positive impacts of adequate resources in the delivery of quality healthcare at the Makeni regional hospital		
Improve patient outcome		
No	4	2.58
Yes	151	97.42
Quality healthcare delivery		
No	7	4.52
Yes	148	95.48
Better service utilization		
No	26	16.77
Yes	129	83.23
Self-fulfilment as a provider		
No	70	45.16
Yes	85	54.84
Negative impacts of adequate resources in the delivery of quality healthcare at the Makeni regional hospital		
Poor patient outcome		
No	9	5.81
Yes	146	94.19
Poor quality healthcare delivery		
No	2	1.29
Yes	153	98.71
Reduced service utilization		
No	24	15.48
Yes	131	84.52

Table 4: Resource Availability and Quality Healthcare Delivery (n = 155)

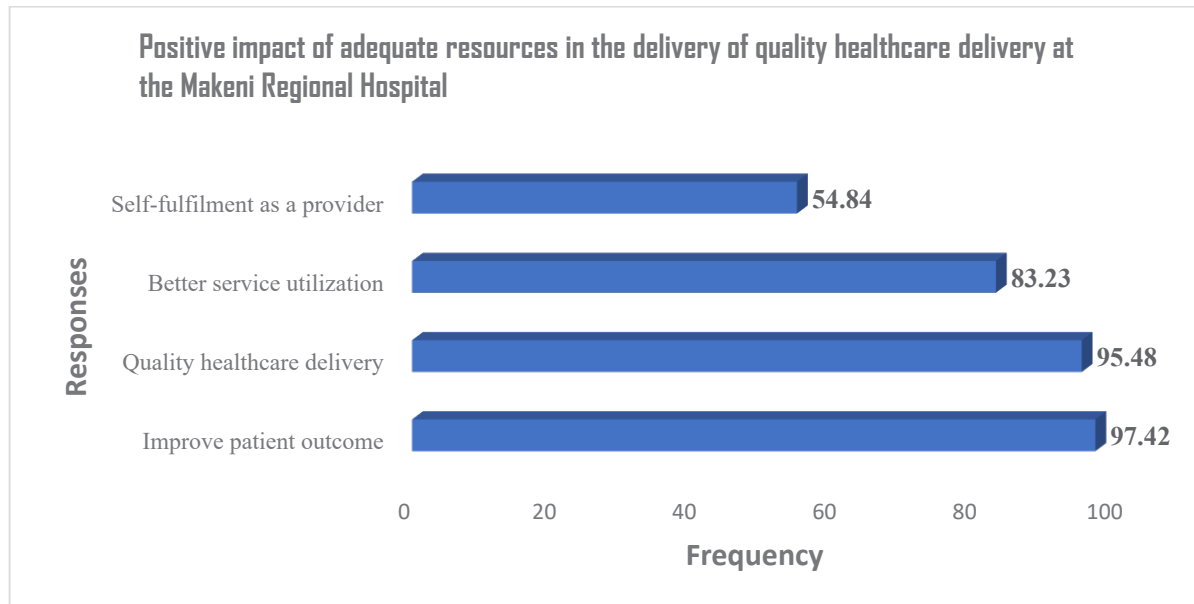


Figure 6: Positive Impact of Adequate Resources on Delivery of Quality Healthcare Delivery at the Makeni Regional Hospital

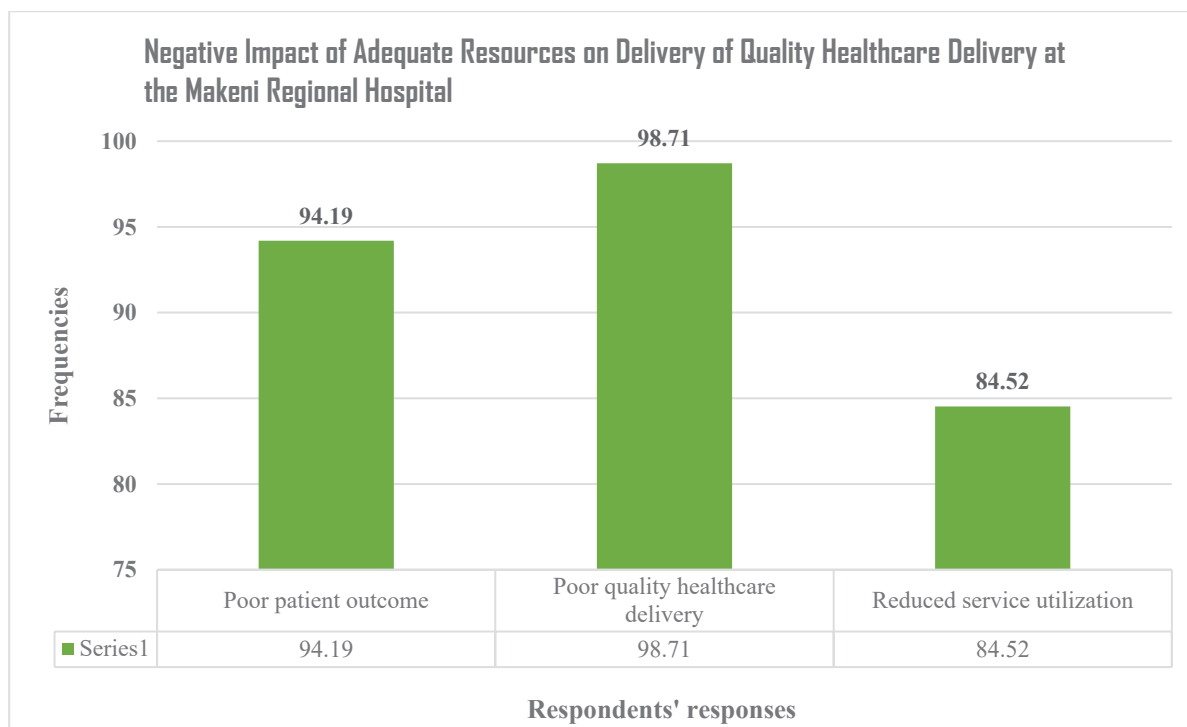


Figure 7: Negative impacts of inadequate resources in service delivery

4. Discussion – Results

This study assessed the influence of service provider competence, motivation, and resource availability on quality healthcare delivery at Makeni Regional Hospital, located in Sierra Leone.

The high proportion of respondents reporting the required professional skills (74.9%) and perceiving their colleagues as competent (91.7%) combined competent/very competent aligns with the view that healthcare professionals possess elevated competence given the nature of the services they provide and their central role in improving patient outcomes [14]. This is consistent with the broader literature framing competence as a set of observable, measurable knowledge, skills, and attributes that shape job performance, and with evidence that abilities, attitudes, and dedication of health professionals are central to hospital performance [15,16].

Provider motivation told a markedly different story: only 7.1% of respondents were highly motivated, despite unanimous agreement (100%) that motivation affects quality of care.

The gap between recognized importance and actual motivation is consistent with prior findings that low employee motivation is a significant contributor to poor service quality, linked to absenteeism, irritability with patients, long wait times, informal fee charging, and labor unrest [5].

It also echoes with evidence from rural Sierra Leone that unfavorable working conditions, limited training and development access, plus long hours driven by staffing shortages, demotivate health workers [8].

The prominence of finance, accommodation, job satisfaction, and in-service training as cited forms of motivation supports findings that reimbursement and benefit-administration practices are meaningfully correlated with the standard of healthcare delivered and that both monetary and non-monetary incentives increase employee motivation and organizational loyalty [17].

Resource availability emerged as the determinant most strongly and consistently linked to quality outcomes, with 99.4% of respondents affirming its impact. This is firm.

Our findings are consistent with the view that inadequate infrastructure and a lack of competent labor make it difficult for health organizations to meet demand for care, and with evidence that subpar equipment and materials reduce employee productivity while resource shortages increase workplace stress among providers [18,19].

The specific deficits identified in this study, namely, inadequate bed capacity (45.8%) and grossly inadequate information technology infrastructure (40.0%), point to structural gaps that persist even where human resource inputs (competence) appear comparatively

strong, underscoring that human resources are only one of several inputs, alongside consumables and physical capital, that health systems require in tandem [16].

4.1. Discussion -- Impact

Taken together, the pattern of high competence, low motivation, and uneven resource adequacy suggests that the weakest link in quality healthcare delivery at Makeni Regional Hospital is not provider skill but the systems that sustain and equip that skill, namely motivation mechanisms and resource provisioning.

This is consistent with broader observations that even well-developed health systems with available resources continue to show significant variation in care standards and that closing this gap requires attention beyond training alone [4].

5. Conclusion

Service provider competence, motivation, and resource availability were each found to significantly influence the delivery of quality healthcare at Makeni Regional Hospital.

Competence and provision of quality health service were closely related, with the hospital's workforce demonstrating a generally high level of professional skill. However, motivation was low, with only 7.1% of respondents highly motivated, despite universal agreement that motivation shapes the quality of care delivered. This may be paradoxical.

Resource availability was affirmed by 95.5% of respondents as enhancing quality healthcare delivery and was the factor most consistently linked to improved patient outcomes, though notable gaps remain in bed capacity and information technology infrastructure.

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Declaration of Conflicts of Interest

The contributing authors all volunteer no competing nor conflict of interest with this project or with the content of the manuscript.

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Data Availability

All data for our research study is presented within this article and are available separately from the Lead Author or Corresponding Author with a request from any interested individual.

Ethics Approval and Consent to Participate

Ethical approval was sought and received from the Ethical Review Board of the Sierra Leone Ethics and Scientific Review Committee. An informed consent form was issued to each respondent to seek their consent, assure them that their contribution to the study will be confidential, and that the data provided can only be used for the purpose of the study.

The respondents were also informed that no form of financial incentive will be given to them for being part of the study – and that their choice of not being part of the study cannot stop them from getting any benefit that may come because of the study.

Authors Contributions

Aiah Lebbie: Conceptualization, Investigation, Initial Analysis, and Drafting and Editing Final Manuscript.

Abraham I. Jimmy: Co-Conceptualization, Data Review, Co-Analysis, plus Reviewing & Proofing Final Draft.

Sallu N. Kamara: Methodology, and Co-Data Review,

plus Reviewing & Proofing Final Draft.

Lee Presley Gary, Jr.: Resources, Visualization, Restructuring Outline, plus Editing and Finalizing Manuscript.

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Lee P. Gary, Jr. is as Visiting Fulbright Research Scholar at the University of Malta, and he is the Director of the Maltese Legionella Project. Previously, he was a Visiting Fulbright Fellow with the new School of Public Health at the University of Makeni in Sierra Leone for 2025.

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