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Organizational Innovations, Facility Size and Service Delivery of Public Health Institutions Among Selected Counties in North Rift Region, Kenya

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Abstract

Service delivery among health institutions is vital for a healthy nation, focusing on high-quality, affordable, and timely healthcare services. This study examined how organizational innovations impact service delivery in public health institutions across select counties in Kenya's North Rift Region. The study explored the effects of technological, process, learning and development, and cultural innovations on service delivery, with facility size as a moderating factor. The Diffusion of Innovation Theory guided the research, which utilized an explanatory research design. The target population comprised 336 hospitals classified as level 5, level 4, and level 3. A multistage sampling technique was used, and data were collected using a questionnaire, validated through expert reviews, and tested for internal consistency using Cronbach's Alpha. Data analysis involved descriptive statistics, including frequency, percentages, averages, and standard deviation, and inferential statistics like regression models and correlation. Hierarchical regression analysis examined the relationships between dependent, independent, and moderating variables. The findings revealed that technological innovation significantly and positively affected service delivery ($\beta1=0.330$, $p<0.05$). Process innovation ($\beta2=0.243$, $p<0.05$), learning and development innovations ($\beta3=0.148$, $p<0.05$), and cultural innovations ($\beta4=0.178$, $p<0.05$) all had positive and significant impacts on service delivery. Facility size moderated these relationships, with varying effects: technological ($\beta=-.029$; $p<0.05$), process ($\beta=-.095$; $p<0.05$), and learning and development ($\beta=-0.058$; $p<0.05$) innovations were negatively moderated, while cultural innovation was positively moderated ($\beta=.034$; $p<0.05$). The study concludes that innovations in healthcare service delivery significantly improved accessibility and patient satisfaction. The study recommends enhancing appointment scheduling systems for better integration with existing processes, investing in mobile health clinics and telemedicine.

Keywords: *Healthcare innovation, service delivery, patient satisfaction, telemedicine, cultural competence*

1.1 Background to the Study

The provision of medical care is a complex and multifaceted endeavor focused on delivering efficient, effective, and patient-centered healthcare services. High-quality healthcare is defined by its ability to meet patient needs while adhering to standards and guidelines (Lifshitz et al., 2019). Essential attributes of service delivery include timeliness, availability, affordability, confidentiality, and responsiveness (Tzenios, 2019). Organizational innovations are crucial in enhancing these aspects, with implementation often influenced by the size and resources of healthcare facilities (Clohessy & Acton, 2019; AlTaweel & Al-Hawary, 2021). Service delivery is vital in both public and private sectors, involving efficient service provision to clients or citizens. Reliable service delivery builds trust and enhances an organization's reputation, leading to repeat business and positive word-of-mouth (Bankins & Waterhouse, 2019), while poor service delivery can harm an organization's image, especially in competitive markets.

Organizational innovation is essential for success and competitiveness, encompassing the development of new products and the refinement of processes, business models, and organizational culture (Ali & Anwar, 2021; Kehinde, 2023). Innovations such as telemedicine have expanded access to care, while process improvements have streamlined operations and reduced costs (Liao & Zhang, 2020; Johansson et al., 2019). The size of a healthcare facility significantly impacts its ability to deliver services and implement innovations, with larger facilities often better equipped to manage patient influxes during peak times (Asamrew et al., 2020). In Kenya, the health sector is undergoing significant development, with recent investments in medical devices, health IT, and pharmaceuticals presenting new opportunities for improving healthcare services despite challenges like low income levels and a fragmented healthcare system (World Health Organization, 2022; Haleem et al., 2022).

1.2 Statement of the Problem

Service delivery among health institutions was a critical necessity for a healthy nation (Usak *et al.*, 2020). Citizens should have high-quality, affordable, and timely healthcare services (Santhirapala *et al.*, 2020). This implies that there would be a sufficient number of health facilities and healthcare workers equipped with resources and expertise necessary to meet the needs of the population. Such health facilities yield positive results in terms of disease prevention, timely medical care, chronic disease management, maternal and child health and community health education.

Statistics by the Kenya National Bureau of Statistics (2022) showed that the nurse-to-patient ratio in North Rift Region was 1:1,000, which was below the World Health Organization (WHO) recommended ratio of 1:500. Nurse-to-patient ratio: The doctor-to-patient ratio in the region was 1:10,000, which was also lower than the WHO recommended ratio of 1:1,000. Such alarming levels of understaffing definitely compromises the service delivery among health institutions in the region. Uasin Gishu County has a high outpatient public healthcare utilization rate of 2.19 annual outpatient visits per capita, but the quality of health services rendered to the county population was a growing concern (Chepchirchir, & Kimutai, 2019).

Research findings showed mixed results regarding organizational innovations and service delivery among health institutions. While some (Honda, 2023 had positive views, others (Marlon &

Leedham, 2021) had negative views, and yet others (Phan 2019 & Haring, 2022) had an inconclusive view. This study therefore sought to investigate how facility size moderates the relationship between organizational innovation and service delivery of health institutions among selected counties in North Rift Region Kenya.

1.3 Research Questions

i. What is the effect of technological innovation on service delivery among health institutions in selected counties in North Rift Region, Kenya?
ii. How does process innovation affect service delivery among health institutions in selected counties in North Rift Region, Kenya?
iii. What is the effect of learning and development innovations on service delivery among health institutions in selected counties in North Rift Region, Kenya?
iv. How does cultural innovation affect service delivery among health institutions in selected counties in North Rift Region, Kenya?
v. How does organizational innovation relate with service delivery among health institutions in selected counties in North Rift Region, Kenya?
vi. How does facility size moderate the relationship between:
    a) Technological innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya?
    b) Process innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya?
    c) Learning and development innovations and service delivery among health institutions in selected counties in North Rift Region, Kenya?
    d) Cultural innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya?

1.4 Research Hypotheses

H_{01}: Technological innovation has no significant effect on service delivery among health institutions in selected counties in North Rift Region, Kenya

H_{02}: Process innovation has no significant effect on service delivery among health institutions in selected counties in North Rift Region, Kenya

H_{03}: Learning and development innovation has no significant effect on service delivery among health institutions in selected counties in North Rift Region, Kenya

H_{04}: Cultural innovation has no significant effect on service delivery among health institutions in selected counties in North Rift Region, Kenya

H_{05}: Organizational innovation has no significant effect on service delivery among health institutions in selected counties in North Rift Region, Kenya

H_{06}: Facility size has no moderating effect on the relationship between:
a) Technological innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya

b) Process innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya
c) Learning and development innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya
d) Cultural innovation and service delivery among health institutions in selected counties in North Rift Region, Kenya

2.1 Theoretical Literature Review

This study shall be guided by Innovation Management Theory, Knowledge-Based Theory (KBT), and Configuration Theory, which together provide a comprehensive framework for understanding how organizational innovation, knowledge resources, and structural alignment influence service delivery in healthcare institutions.

2.1.1 Innovation Management Theory

Aghion and Tirole's (1994) Innovation Management Theory underscores the importance of collaboration across all organizational levels to drive innovation beyond traditional research and development. In healthcare, this theory guides institutions in identifying and implementing various innovations—process, product, radical, and incremental—by fostering a culture of creativity and risk-taking. Applied to health facilities in Kenya's North Rift Region, the theory provides a framework for managing the innovation process from idea generation to implementation, ultimately enhancing service delivery and patient care.

2.1.2 Knowledge-Based Theory (KBT)

The Knowledge-Based Theory (KBT), developed by Barney, Grant, Kogut, Zander, and Nonaka in the 1990s, emphasizes that knowledge is the most crucial resource for a firm's competitive advantage (Barney, 1991; Grant, 1996). The theory highlights the importance of both explicit knowledge, which can be easily shared, and tacit knowledge, such as intuition and experience (Kogut & Zander, 1992). In healthcare, KBT suggests that institutions should focus on developing and leveraging their knowledge-based resources to improve service delivery. This includes investing in research, training, and fostering a learning culture while being cautious about sharing knowledge to maintain a competitive edge (Nonaka, 1994). KBT provides a framework for evaluating the effectiveness of innovations and service delivery by tracking the development and use of key knowledge resources.

2.1.3 Configuration Theory

Configuration Theory, developed in the 1960s and 1970s by scholars like Chandler (1962), Metzenzerg and Muller (1970), and Mills and Snow (1978), emphasizes that an organization's performance relies on the alignment between its design and external environment. The theory posits that optimal performance is achieved when an organization’s structure and strategy are well-matched with external contingencies. In healthcare innovation, this theory highlights the importance of aligning structures, processes, and resources to foster creativity, collaboration, and the successful implementation of innovations, ultimately enhancing service delivery.

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2.2 Conceptual Framework

A conceptual framework is a structured representation of the relationships between key variables in a study. It visually maps out how independent, dependent, and moderating variables interact, providing a clear overview of the research's theoretical underpinnings. This is illustrated in Figure 1 below.

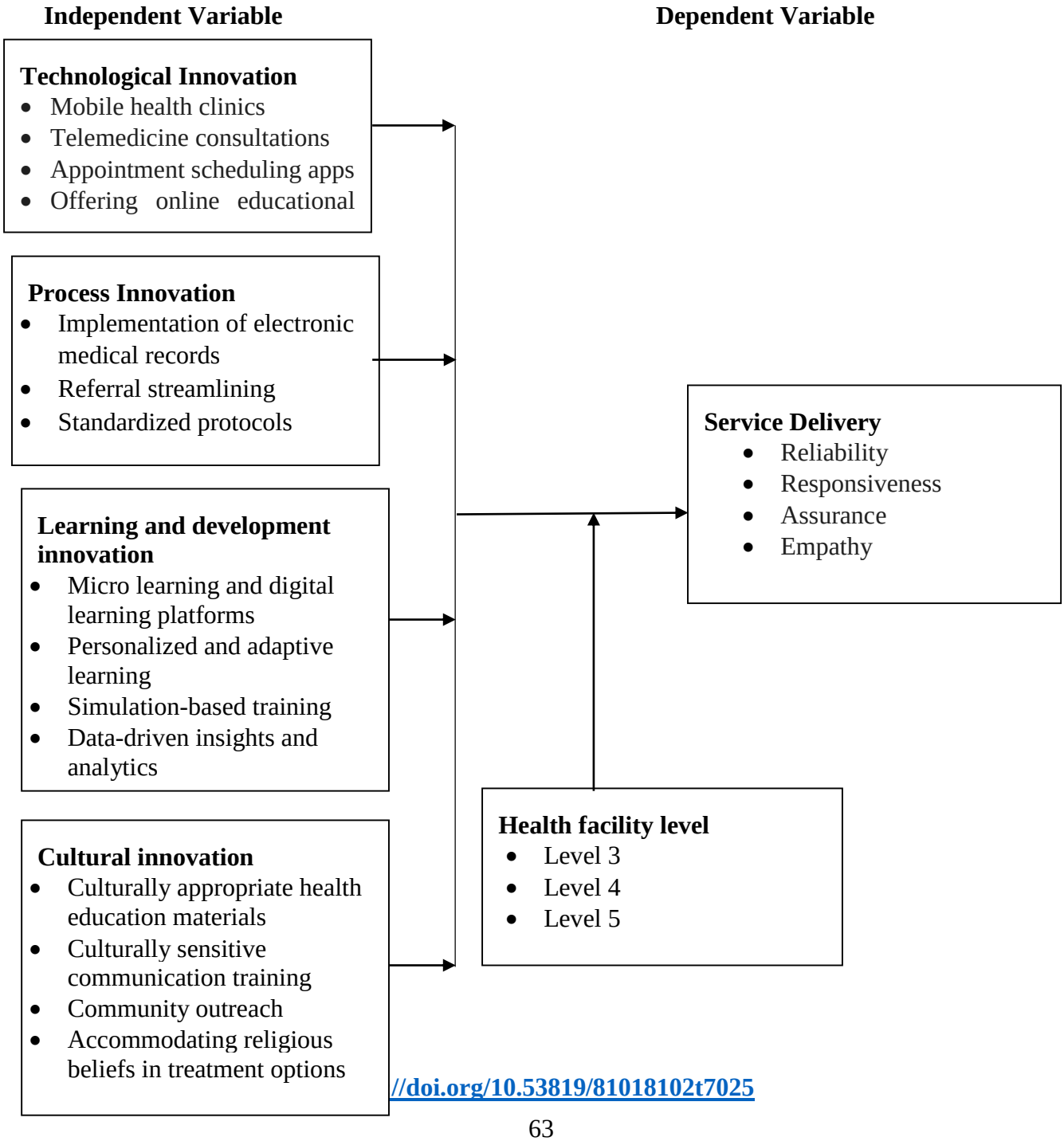

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Figure 1: Conceptual Framework

The conceptual framework in this study outlines the relationships between innovations in learning and development, processes, technology, and culture (independent variables), and service delivery (dependent variable), with health facility size acting as a moderating variable. Technological, process, and cultural innovations are assessed through specific measures like telemedicine, electronic records, and culturally sensitive practices. The framework emphasizes that organizational innovation significantly improves healthcare service delivery by enhancing efficiency and reducing wait times. It also highlights the importance of administrative innovation and external collaborations in driving organizational performance and innovation.

3.0 Research Methodology

The study employed an explanatory research design, justified by prior empirical research, to explore the relationships between organizational innovations, facility size, and service delivery among health institutions in Kenya's North Rift Region. The target population included 336 hospitals across Nandi, Elgeyo Marakwet, and Uasin Gishu counties, with data collected from both administrative staff and patients using questionnaires. The validity of the research instruments was ensured through expert reviews, and reliability was tested using Cronbach's Alpha, achieving acceptable levels across all variables. A multistage sampling method was used, with stratified random sampling to ensure representation across different hospital levels. Data collection was conducted with appropriate permissions, and the analysis involved both descriptive and inferential statistics, including correlation and regression models, to assess the relationships between the study variables. Assumptions of normality, linearity, homoscedasticity, and multicollinearity were tested to validate the regression models used in the analysis. The model employed is as follows:

Model 1 $Y = \beta_0 + \beta_1 X_1 + \varepsilon$ …… **Equation 1**

Model 2 $Y = \beta_0 + \beta_2 X_2 + \varepsilon$…… **Equation 2**

Model 3 $Y = \beta_0 + \beta_3 X_3 + \varepsilon$…….. **Equation 3**

Model 4 $Y = \beta_0 + \beta_4 X_4 + \varepsilon$ …….. **Equation 4**

Model 5 $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$…….**Equation 5**

Model 6 $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 Z + \varepsilon$…**Equation 6**

Where:

Y was the service delivery among health institutions

β_0 represent the Y intercept when x was zero

X_1 **was** Technological innovation

X_2 **was** process innovation

X_3 was development innovations

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X_4 was cultural innovation

Z was health facility size

β_1, β_2 and β_9 and coefficients of the study variables

ε was the error term

4.0 Findings

This section presents the findings of the study. They include the inferential statistics and hypotheses.

4.1 Regression Analysis

4.1.1 Technological innovation and Service Delivery

The study conducted a simple linear regression analysis to explore the relationship between technological innovation and service delivery in selected health institutions in Kenya's North Rift Region. The results of the analysis are summarized in Table 7.

Table 1: Linear regression model of Technological innovation and Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.480a	0.231	0.228	0.60495

a. Predictors: (Constant), Technological innovation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.573	1	27.573	75.341	.000b
	Residual	91.858	251	0.366		
	Total	119.431	252			

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.043	0.201		10.174	0
	Technological innovation	0.47	0.054	0.48	8.68	0

The regression model summary indicated that technological innovation explains approximately 23.1% of the variance in service delivery, as evidenced by an R^2 value of 0.231. The model's fitness was confirmed by significant F-statistics ($F = 75.341$, $p = 0.000$), demonstrating that the relationship between technological innovation and service delivery is statistically significant. Further analysis revealed that technological innovation positively impacts service delivery, with a standardized coefficient (β) of 0.470, meaning that for every unit increase in technological

innovation, service delivery improves by 0.470 units. These results underscore the critical role of technological advancements in enhancing the efficiency and quality of healthcare service delivery.

4.1.2 Process Innovation

The study conducted a simple linear regression analysis to examine the relationship between process innovation and service delivery in selected health institutions in Kenya's North Rift Region. The results are summarized in Table 2.

Table 2: Linear regression model of Process Innovation and Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.461a	0.212	0.209	0.61225

a. Predictors: (Constant), Process innovation

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.344	1	25.344	67.613	.000b
Residual	94.086	251	0.375		
Total	119.431	252			

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.	Beta		
(Constant)	2.039	0.212		9.613	0
Process	0.469	0.057	0.461	8.223	0

The regression model summary revealed an R-value of 0.461 and an R-squared value of 0.212, indicating that process innovation explains approximately 21.2% of the variation in service delivery. The model's fitness was confirmed by significant F-statistics ($F = 67.613$, $p = 0.000$), suggesting a strong statistical correlation between process innovation and service delivery. The regression coefficients further demonstrated that process innovation has a positive and significant impact on service delivery, with a standardized coefficient (β) of 0.469. This implies that for every unit increase in process innovation, service delivery improves by 0.469 units, highlighting the importance of process innovation in enhancing healthcare services.

4.1.3 Learning and Development Innovations

The simple linear regression for learning and development innovations and service delivery was carried out and the results are presented in Table 3:

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Table 3: Learning and Development Innovation and Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462a	0.213	0.21	0.61189

a. Predictors: (Constant), learning and development innovations

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.454	1	25.454	67.984	.000 b
Residual	93.977	251	0.374		
Total	119.431	252			

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.	Beta		
(Constant)	2.105	0.204		10.332	0
Development	0.479	0.058	0.462	8.245	0

The regression model summary indicated an R-value of 0.462 and an R-squared value of 0.213, suggesting that learning and development innovations explain approximately 21.3% of the variance in service delivery. The model's fitness was confirmed by significant F-statistics ($F = 67.984$, $p = 0.000$), demonstrating that the relationship between learning and development innovations and service delivery is statistically significant. The regression coefficients further revealed that learning and development innovations positively impact service delivery, with a standardized coefficient (β) of 0.479. This means that for every unit increase in learning and development innovations, service delivery improves by 0.479 units, highlighting the critical role of continuous development in enhancing healthcare service delivery.

4.1.4 Cultural Innovation

The study conducted a simple linear regression analysis to examine the relationship between cultural innovation and service delivery in selected health institutions in Kenya's North Rift Region. The results are summarized in Table 4.

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Table 4: Multiple Linear Regression Analysis for Cultural Innovation and Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.489a	0.239	0.236	0.60175	
a. Predictors: (Constant), Cultural innovation					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	28.543	1	28.543	78.826	.000b
Residual	90.888	251	0.362		
Total	119.431	252			
	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std.**	**Beta**		
(Constant)	1.98	0.203		9.731	0
Cultural	0.476	0.054	0.489	8.878	0

The regression model summary indicated an R-value of 0.489 and an R-squared value of 239, suggesting that cultural innovation explains approximately 23.9% of the variance in service delivery. The model's fitness was confirmed by significant F-statistics (F = 78.826, p = 0.000), demonstrating a strong statistical correlation between cultural innovation and service delivery. The regression coefficients further revealed that cultural innovation positively impacts service delivery, with a standardized coefficient (β) of 0.476. This indicates that for every unit increase in cultural innovation, service delivery improves by 0.476 units, emphasizing the importance of cultural considerations in enhancing healthcare service delivery.

4.1.5 Health Facility Size

The study conducted a simple linear regression analysis to explore the relationship between health facility size and service delivery in selected health institutions in Kenya's North Rift Region. The results are summarized in Table 5.

Table 5: Multiple Linear Regression of Health Facility Size and Service Delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.477a	0.228	0.225	0.60613	
a. Predictors: (Constant), Health Facility Size					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	27.214	1	27.214	74.071	.000 b
Residual	92.217	251	0.367		
Total	119.431	252			
	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std.**	**Beta**		
(Constant)	2.079	0.198		10.486	0
Health facility	0.458	0.053	0.477	8.606	0

The regression model summary indicated an R-value of 0.477 and an R-squared value of 0.228, suggesting that health facility size explains approximately 22.8% of the variance in service delivery. The model's fitness was confirmed by significant F-statistics (F = 74.071, p = 0.000), demonstrating a strong statistical correlation between health facility size and service delivery. The regression coefficients further revealed that health facility size positively impacts service delivery, with a standardized coefficient (β) of 0.458. This implies that for every unit increase in the size of a health facility, service delivery improves by 0.458 units, highlighting the importance of facility size in enhancing healthcare service provision.

The optimal model was;

$$\mathbf{Y= -0.778 + 0.291X_1 + 0.589X_2 + 0.285X_3 - 0.240X_4 + 0.665Z - 0.029Z*X_1 - 095Z*X_2 - 0.058Z*X_3 + 0.034Z*X_4}$$

4.2 Hypothesis Testing Results

The study conducted hypothesis testing using linear regression analysis. The summary of results is as shown in Table 6:

Table 6: Summary of Hypotheses Test Results

Hypothesis	β-value	p-value	Decision rule
H_{01}. Technological innovation has no significant effect on service delivery	β_1=0.291	p=0.000<0.05	Rejected the null hypothesis
H_{02}. Process innovation has no significant effect on the service delivery	β_2=0.589	p=0.000<0.05	Rejected the null hypothesis
H_{03}. Learning and development innovations has no significant effect on the service delivery	β_3=0.285	p=0.007<0.05	Rejected the null hypothesis
H_{04}. Cultural innovation has no significant effect on the service delivery	β_4=-0.024	p=0.000<0.05	Rejected the null hypothesis
H_{05a}. Facility size has no significant moderating effect on the relationship between Technological innovation and service delivery	β_{05a}=-.029	p=0.039<0.05	Rejected the null hypothesis
H_{05b}. Facility size has no significant moderating effect on the relationship between process innovation and service delivery	β_{05b}=-0.095	p=0.000<0.05	Rejected the null hypothesis
H_{05c}. Facility size has no significant moderating effect on the relationship between learning and development innovations and service delivery	β_{05c}=-0.058	p=0.001<0.05	Rejected the null hypothesis
H_{05d}. Facility size has no significant moderating effect on the relationship between cultural innovation and service delivery	B_{05d}=0.034	p=0.035<0.05	Rejected the null hypothesis

Source: Field Data (2024)

The hypothesis testing results indicated that technological innovation (β1=0.291, p<0.05), process innovation (β2=0.589, p<0.05), learning and development innovations (β3=0.285, p<0.05), and cultural innovation (β4=-0.241, p<0.05) all significantly impact service delivery, leading to the rejection of their respective null hypotheses (H01, H02, H03, H04). This suggests that each of these factors plays a substantial role in enhancing or affecting service delivery in health institutions.

Additionally, the study found that facility size significantly moderates the relationship between these innovations and service delivery. Specifically, facility size positively moderated the link between technological innovation and service delivery (β05a=-0.029; p<0.05) and cultural innovation and service delivery (β05d=0.034; p<0.05), while it negatively moderated the relationship between process innovation (β05b=-0.095; p<0.05) and learning and development innovations (β05c = -0.058; p<0.05) with service delivery. Consequently, the null hypotheses H05a, H05b, H05c, and H05d were all rejected, indicating that facility size has a significant moderating effect on the relationship between these innovations and service delivery.

5.0 Discussion

The study revealed that technological, process, learning and development, cultural innovations, and health facility size significantly influence service delivery in health institutions within the North Rift Region. Technological innovations, such as telemedicine consultations, have notably enhanced access to specialist care, while process innovations, particularly in patient care coordination, have improved the efficiency of healthcare delivery. However, the implementation of appointment booking applications and lean management concepts did not yield the expected reductions in patient wait times and waste. Additionally, while cultural innovations like respecting cultural customs and flexible scheduling were well received, learning and development innovations did not significantly enhance healthcare workers' access to training materials. The study also found that health facility size played a critical role, with smaller facilities offering a more personalized patient experience, while larger facilities provided greater access to specialists and advanced technology.

The finding that telemedicine has significantly improved access to specialist care aligns with research by Palozzi, Schettini, and Chirico (2020), who noted that telemedicine reduces costs and improves access to quality care in remote areas. This suggests that telemedicine is particularly beneficial in overcoming geographical barriers and improving health outcomes in underserved regions. Additionally, the study's observation of the positive impact of community health workers' incentives on reducing hospital admissions supports Manzoor et al.'s (2019) findings that preventive healthcare services positively influence patient satisfaction and health outcomes. These findings underscore the importance of technological and community-based interventions in enhancing healthcare accessibility and effectiveness.

The mixed results regarding process innovations, particularly the lack of improvement in resource allocation through lean management, resonate with Hutner, Thorenz, and Tuma's (2017) findings that waste prevention measures often face implementation challenges in healthcare settings. This suggests that while process innovations hold potential, their success depends on effective execution and contextual adaptability. Similarly, the finding that e-learning modules did not

significantly improve healthcare workers' understanding of new treatment procedures is consistent with Wang et al.'s (2021) research, which highlights barriers to behavior change in e-learning due to content complexity and technical limitations. The study's insights on cultural innovations, such as respecting cultural customs, align with Henderson et al. (2018), who emphasize that cultural competence in healthcare leads to better health outcomes and patient satisfaction. Lastly, the study's conclusion that smaller health facilities offer a more personalized patient experience is supported by Liddicoat's (2020) research, emphasizing the impact of healthcare space design on patient-provider relationships and overall patient experience.

6.0 Conclusion

The study concludes that innovations in technological, process, learning and development, and cultural areas have led to significant improvements in healthcare service delivery and accessibility, as perceived by both patients and administrative personnel. The research highlights the positive impact of telemedicine, mobile health clinics, and partnerships with NGOs on enhancing healthcare access and patient outcomes, while also noting the limited success of appointment scheduling applications in reducing wait times. Additionally, the study finds that facility size plays a moderating role in the effectiveness of these innovations, with smaller facilities offering more personalized care and larger facilities providing greater access to specialized services, albeit with longer wait times. The integration of cultural practices into healthcare has been well-received, further improving service delivery. Despite some challenges, such as inadequate funding for ongoing learning projects and mixed feedback on e-learning modules, overall satisfaction with service tangibility, reliability, staff responsiveness, and empathy in service delivery remains high among patients.

7.0 Recommendation

The study recommends prioritizing the improvement of appointment scheduling systems to address user dissatisfaction, ensuring these technologies are user-friendly and well-integrated into existing healthcare processes. Management should enhance training and support for electronic medical records (EMRs) and streamline processes in larger facilities to increase efficiency. Additionally, it suggests expanding regular skill-based workshops, simulation training, and leadership development initiatives to improve staff readiness and communication. The study also advocates for the integration and support of cultural innovations across both large and small healthcare institutions to enhance service delivery and patient satisfaction. Finally, it calls for future research on the long-term impact of mobile health clinics, the effectiveness of telemedicine across diverse populations, and the optimization of lean management principles in healthcare settings.

References

Adhikary, G., Shawon, M. S. R., Ali, M. W., Shamsuzzaman, M., Ahmed, S., Shackelford, K. A., ... & Uddin, M. J. (2018). Factors influencing patients' satisfaction at different levels of health facilities in Bangladesh: Results from patient exit interviews. *PloS one*, *13*(5), e0196643.

Black, R. E., Taylor, C. E., Arole, S., Bang, A., Bhutta, Z. A., Chowdhury, A. M. R., ... & Perry, H. B. (2017). Comprehensive review of the evidence regarding the effectiveness of community–based primary health care in improving maternal, neonatal and child health: 8. summary and recommendations of the Expert Panel. *Journal of global health*, *7*(1).

Enaizan, O., Zaidan, A. A., Alwi, N. H. M., Zaidan, B. B., Alsalem, M. A., Albahri, O. S., & Albahri, A. S. (2020). Electronic medical record systems: Decision support examination framework for individual, security and privacy concerns using multi-perspective analysis. *Health and Technology*, *10*, 795-822.

Hehenberger, P., Vogel-Heuser, B., Bradley, D., Eynard, B., Tomiyama, T., & Achiche, S. (2016). Design, modelling, simulation and integration of cyber physical systems: Methods and applications. *Computers in Industry*, *82*, 273-289.

Hermann, R. M., Long, E., & Trotta, R. L. (2019). Improving patients' experiences communicating with nurses and providers in the emergency department. *Journal of emergency nursing*, *45*(5), 523-530.

Izuka, U., Ojo, G. G., Ayodeji, S. A., Ndiwe, T. C., & Ehiaguina, V. E. (2023). Powering Rural Healthcare With Sustainable Energy: A Global Review Of Solar Solutions. *Engineering Science & Technology Journal*, *4*(4), 190-208.

Kemp, E., Trigg, J., Beatty, L., Christensen, C., Dhillon, H. M., Maeder, A., ... & Koczwara, B. (2021). Health literacy, digital health literacy and the implementation of digital health technologies in cancer care: the need for a strategic approach. *Health Promotion Journal of Australia*, *32*, 104-114.

Kichloo, A., Albosta, M., Dettloff, K., Wani, F., El-Amir, Z., Singh, J., ... & Chugh, S. (2020). Telemedicine, the current COVID-19 pandemic and the future: a narrative review and perspectives moving forward in the USA. *Family medicine and community health*, *8*(3).

Majid, U., & Wasim, A. (2020). Patient-centric culture and implications for patient engagement during the COVID-19 pandemic. *Patient Experience Journal*, *7*(3), 5-16.

Manzoor, F., Wei, L., Hussain, A., Asif, M., & Shah, S. I. A. (2019). Patient satisfaction with health care services; an application of physician's behavior as a moderator. *International journal of environmental research and public health*, *16*(18), 3318.

Palozzi, G., Schettini, I., & Chirico, A. (2020). Enhancing the sustainable goal of access to healthcare: findings from a literature review on telemedicine employment in rural areas. *Sustainability*, *12*(8), 3318.

Shepherd, S. M., Willis-Esqueda, C., Newton, D., Sivasubramaniam, D., & Paradies, Y. (2019). The challenge of cultural competence in the workplace: perspectives of healthcare providers. *BMC Health Services Research*, *19*, 1-11.

Yirgu, R., Wood, S. N., Karp, C., Tsui, A., & Moreau, C. (2020). "You better use the safer one… leave this one": the role of health providers in women's pursuit of their preferred family planning methods. *BMC women's health*, *20*, 1-9.