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Health System Structural Factors Associated with Use of Scorecard to Improve RMNCAH Performance Indicators in Public Primary Health Facilities in Kenya

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Abstract

Purpose: Researchers looked into how the structure of the health system affects the use of scorecards to boost reproductive, maternal, newborn, child, and adolescent health (RMNCAH) in Kenya's Kwale and Kilifi Counties' public primary health facilities. Specifically, this includes use of the RMNCAH indicators, trainings received on RMNCAH indicators, and factors associated with the utilization of the RMNCAH indicators.

Materials and Methods: We conducted a cross-sectional study to gather quantitative data from 119 primary healthcare workers in chosen public primary facilities via one-on-one interviews. We collected data using tablets and the Kobo Collect app.

Findings: The findings revealed that 89% of the selected facilities analyzed RMNCAH variables, whereas only 13% used scorecards at the time of the study. The study found that 75% of the facilities that used scorecards did not indicate the specific type of scorecard they received training on. Further research revealed a relationship between scorecard type and utilization ($p<0.001$, $\chi2= 2.365$), with 84% of facilities analyzing RMNCAH indicators on a monthly basis, focusing on immunization and family planning. However, 63% of healthcare workers rated the health system's structures as either low or poor. Only 11% of facilities had monitoring and evaluation budgets, yet 78% had RMNCAH indicator targets. While most public primary facilities analyze RMNCAH indicators, only a small percentage of these facilities use scorecards due to barriers such as limited training on different types of scorecards, a lack of monitoring and evaluation budget commitments, and poor structural components of the health system

Implications to Theory, Practice and Policy: While facilities appreciate the availability of RMNCAH indicators, still the main focus is on immunization and family planning, hence the need for a more comprehensive monitoring of all RMNCAH indicators.

Keywords: *RMNCAH, Scorecards, Primary Health Facility, Health Systems, Performance Indicators, Kenya*

JEL Codes: I12

1.0 INTRODUCTION

Reproductive, Maternal, Neonatal, Child, and Adolescent Health (RMNCAH) is a continuous process ranging from pre-pregnancy, pregnancy, and birth to the immediate postnatal period for women and newborns through childhood and adolescence. It is a critical area of focus in the global health system to improve the well-being of the vulnerable population[1]. Globally, increasing efforts have been made to improve RMNCAH over the past two decades, including via social accountability approaches: citizen-led, collective processes, many individual studies and several reviews conducted[2].

About 287,000 women died during and following pregnancy and childbirth in 2020 globally of which almost 95% of all maternal deaths occurred in low and middle-income countries[3]. RMNCAH coverage in Low and Middle-income countries (LMIC) has improved over the past few decades[4]. Despite declines in the maternal mortality rate (MMR) in some sites, all sites had an MMR higher than the Sustainable Development Goals target. Countries like the Democratic Republic of Congo, Guatemala, India (Nagpur and Belagavi), Kenya, Pakistan, Sudan, and Zambia have relatively high-risk estimates for mortality [5]. Factors like maternal age, education, and delivery complications contribute to increased risk[6]. The gap in the implementation of policies is mainly due to the weaknesses identified in different health system building blocks including a shortage of human resources in the health system, a lack of medicines and supplies, and low national funding caused by, ongoing conflict, weak governance, a lack of accountability, and a low human resource capacity. The combined effects of all these factors have led to poor-quality healthcare systems in Africa and other slow-developing continents[5].

The Constitution of Kenya provides that every person has the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care. In 2013, Kenya transitioned to a devolved system of government under which 47 newly created county governments oversee the delivery of primary and secondary health care services[7]. This was necessary to strengthen the delivery of integrated comprehensive and high-quality community health services by increasing the availability, quality, demand, and utilization of data of all citizens regardless of their location[8].

Kenya Universal Health Policy (2020-2030) highlighted the Kenyan Constitution and Vision 2030 development plans that required the country to provide the highest attainable standards of healthcare to its population. UHC Policy Implementation Framework was drafted to ensure that the health sector and the country, in general, embrace the principles of equality, people-centeredness, efficiency, social solidarity, and a multi-sectoral approach for quality attainability of the goals[9].

The Sustainable Development Goals (SDGs) play a crucial role in achieving Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCAH) within the United Nations (UN) and the World Health Organization (WHO) frameworks. The SDGs emphasize the importance of disaggregated data to monitor progress in RMNCH coverage, focusing on dimensions like wealth quintiles, gender, education, and geographic location. The Sustainable Development Goal (SDG) 17.18 recommends efforts to increase the availability of data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, and geographic location in developing countries[10].

As a member of the UN, Kenya is required to uphold SDG 3 which targets a reduction in the global maternal mortality rate to less than 10 per 100,000 live births, ensure universal access to sexual reproductive healthcare services, end preventable deaths of newborns and children under 5 years to ensure healthy lives and promote well-being for all ages by 2030. Indicator and Monitoring Frameworks implemented by WHO aimed to minimize the burden of country-to-global reporting by aligning with 34 indicators from the Sustainable Development Goals (SDGs).

Kenya has undertaken various reforms towards achieving Universal Health Care, like offering free maternity services, and free primary health care in all public primary healthcare facilities, equipping major public hospitals across the country with modern diagnostic equipment, providing health insurance subsidies through NHIF targeting disadvantaged groups, provision of infrastructure and equipment to health facilities across county governments (new wards, ambulances, additional health workers); among other initiatives[11]. In reality, however, the health facilities do not offer some of these services, and the implementation has exhibited various challenges like high catastrophic health expenditures, low geographical access, bureaucracy in accessing the funds by public facilities, unpredictability, and delays in the disbursement of funds, insufficient payment rates, bureaucratic claim processes attributed to inadequate training on the process, and poorly developed hardware to lodge claims in the public sector[12]. Primary healthcare systems suffer from underfunding and neglect and other challenges like inadequate human resources, and poor leadership and management[13].

The underdeveloped healthcare systems in Africa need radical solutions with innovative thought to break the current impasse in service delivery. For example, seeking public-private initiatives, where multinational companies extracting resources from Africa might be encouraged to plow some of the profits back into healthcare for the communities providing the workforce for their commercial activities. Most problems and their solutions lie within human resources, budget allocation, and management thus this should be accorded the highest priority for better health outcomes[13].

Investing in the health workforce to ensure universal access to qualified, skilled, and motivated health workers is key to achieving the Sustainable Development Goals (SDGs). Kenya needs to align future production in terms of care and quantity to the population's health needs. Achieving this requires a multi-sectoral approach to ensure the appropriate quantity and mix of intakes into training institutions based on the health needs and ability to employ health workers produced[14]. The achievement of UHC also requires a multi-sectoral approach so that key social determinants of RMCAH such as education, sociocultural factors, nutrition and food security, housing, communication, transport, access to safe water, sanitation, and hygiene, are fully addressed.

While policies like Universal Health Coverage (UHC) and free maternal care exist in Kenya, gaps and inconsistencies in their implementation hinder consistent service delivery in primary healthcare (PHC) facilities. These policies aim to strengthen access to reproductive, maternal, newborn, child, and adolescent health (RMNCAH). However, most PHC facilities struggle due to a lack of adequate resources, poor and weak infrastructure, poor documentation and reporting, and insufficient training for PHC workers. For example, this study found that while 89% of public primary facilities analyze RMNCAH indicators, only 13% effectively utilize scorecards for monitoring performance. Only 11% of facilities have committed budgets for monitoring and evaluation, contributing to this gap. Additionally, healthcare workers generally perceive the

structural factors of the health system as inadequate. The study hypothesizes that scorecards can help bridge this gap by providing a structured approach to monitoring RMNCAH indicators, strengthening accountability, improving data utilization, and facilitating the adoption and use of scorecards to identify areas needing improvement. By doing so, healthcare policies can translate into tangible benefits for communities.

Gaps the Study Intends to Fill and Beneficiaries

This study aims to address several gaps related to PHC service delivery in the Kenyan health system and benefit key stakeholders. It will determine the level of scorecard usage and identify factors leading to their underutilization despite their potential to strengthen RMNCAH indicator performance. The study will also evaluate the level of training PHC workers have received on scorecard use, and how this training influences the implementation and utilization of scorecards in service delivery within the Kenyan healthcare system. The study looked at how budgeting and allocating resources can help improve the performance of RMNCAH indicators. It does this by looking at the link between these two things and using scorecards to keep an eye on them.

By identifying training gaps that targeted health interventions can address, the study will benefit several key stakeholders, including PHC workers. Policymakers may use the findings to develop and guide policy drafts or adjustments for improved advocacy in committing resources and budgets to support PHC facilities in Kenya. Communities implementing the study will also reap benefits, as the study's interventions on RMNCAH indicators will enhance services, thereby improving care for vulnerable populations such as women and children.

Analysis of Previous Work and Research Gaps

Previous studies have highlighted several challenges within Kenya's health system, particularly in implementing policies like Universal Health Coverage (UHC). These challenges include a lack of trained personnel, poor documentation, and inadequate resources. Structural weaknesses remain significant barriers to effectively implementing these policies, which are crucial for improving reproductive, maternal, and newborn, child, and adolescent health (RMNCAH) indicators. Inconsistencies in most primary health care (PHC) settings further affect service delivery. This study aims to address these gaps by generating evidence on the use of scorecards and their influence on RMNCAH outcomes in Kenyan PHC facilities. There is a notable lack of comparative studies on the effectiveness of scorecards across different regions within Kenya's PHC system. Future studies should explore ways to enhance the understanding and strengthening of PHC service delivery through effective implementation of these policies, providing a more comprehensive approach to improving health outcomes in Kenya.

2.0 MATERIALS AND METHODS

Study Location

This study was conducted in Kwale and Kilifi counties that are among the six counties in Coast region, Kenya. According 2019-population census Kwale and Kilifi had a population of 876,529 and 1,545,211 persons respectively. The health delivery system is categorized into three tiers of care, these are: community, primary care and primary referral. While community service is more focused on creating a demand for healthcare services, the other two focuses on being responsive to the demand created. Public primary care health facilities are mainly level 2 (dispensaries) and

3 (health centres) facilities owned by government (MoH), Non-Governmental Organizations (NGO) or Faith Based Organization (FBO). Majority of the health facilities are public primary care facilities accounting for over 75% of the service workload. According to Kenya Master Health Facility List (KMHFL) reports of February 2022, Kwale and Kilifi had a total of 120 and 161 public primary care facilities respectively.

Study Design and Data Sources

The study was executed following a cross-section research design. Here, quantitative data was collected from a set of pre-identified healthcare workers and sources from a sample of 57 selected public primary health facilities in Kwale and Kilifi counties of Kenya. Data collection was conducted in the months of April and May 2024 with the help of the hired services of professional data collectors for this purpose. Data collection was done using healthcare worker's tool that was prepared, tested, and finalized by research team members before the data collection. Data collectors were trained on administration protocols of the tools and collection of data through Kobo Collect data collection app using handheld mobile devices.

Variables

The dependent variable is improved RMNCAH performance indicators attributed to scorecard use amog facilities. This was measured using RMNCAH index derived from poor performing tracer interventions namely – Family planning, 4th Antenatal care visits, skilled birth attendant and immunization. On the other hand, the independent variables were the health system structural factors: - leadership and governance, health financing, performance appraisal, health workforce and organization culture.

Data Analysis

The data collected from the participants was analyzed using appropriate statistical methods using Stata, a statistical data analysis software, difference between the characteristics of the facilities using scorecard to monitor RMNCAH performance: To check the difference, t-test for each indicator in continuous variable format and chi-square test for each indicator in categorical (binary) format were performed, respectively and the results from the analyses are presented in this document.

Study Participants, Sampling and Sample Size

The study participants were the primary health workers working in public primary health facilities in the two counties while the primary research unit was the health facility. Health worker in charge of maternal and child health at each facility represented each health facility. These are the main health care staffs that have frequent contact while administering procedures to patients for a duration. They are also the ones with the responsibility of collecting health data and draw most clinical and managerial decisions on matters relating to RMNCAH services. The study subjects mainly comprised of nurses or clinical officers.

The study used a stratified random sampling techniques in selecting the study participants to ensure representation from all sub-counties. First, a list of public primary care health facilities by sub-counties was generated using KMHFL database in consultation with CHMT and SCHMT health offices that acted as the sampling frame. By use of computer, a random table list was generated from each sub-county. From each sub-county, public primary care health facilities were selected

proportionate to size for dispensaries' and health centres using simple randomly sampling. A total of 114 health workers (either a nurse officer or a clinical officer in-charge) were recruited for the study.

Since the study was conceptualized as an interventional, the formula by Stanley *et al*., (1990) was applied for calculation of sample size (n) for comparison between two groups when the endpoint is data that is quantitative

$$\text{Sample size (n)} = \frac{2SD^2 (Z_{\alpha//2} + Z_{\beta})^2}{d^2}$$

Where;

SD is standard deviation from previous studies or pilot study

$Z_{\alpha//2}$ is standard errors from the mean corresponding to 95% confidence interval (1.96)

Z_{β} is power of the test (1.28 for $\beta = 10\%$ and 0.842 for $\beta = 20\%$ from Z table)

d is the effect size = difference between the mean values

Using standard deviation found in recent studies done with similar design as 10 and level of significance as 5% and the power of study at 80% with effect size of 5.5. Hence sample size will be:

$$\text{Sample size (n)} = \frac{2SD^2 (1.96 + 0.842)^2}{d^2}$$

$$(n) = \frac{2 \times 10^2 (1.96 + 0.842)^2}{(5.5)^2} = 52$$

To accounting for a likely non-response rate of 10% informed by past studies, the effective sample size was adjusted to 57 participants.

Inclusion and Exclusion Criteria

Health worker who had been working for not less than six months prior to the time of survey since they had some familiarity and exposure to routine health information generated by HMIS and know how it may be utilized. The study excluded those who were unwell or not willing to participate.

Data Collection

Quantitative data was collected using a pretested, semi-structured questionnaire. The questionnaire was adapted from the PRISM framework. The principal investigator supervised the process of data collection by conducting daily data quality checks to verify data collected from the questionnaire and audio records and quality control procedures to minimize study errors. Meetings with research assistants were held at close of each day of data collection to discuss challenges experienced, bottlenecks and check on data accuracy as well as completeness.

3.0 FINDINGS

This results are a continuation of the findings on the baseline characteristics of the respondents in Kwale and Kilifi Counties, Kenya where the findings showed the distribution of respondents who

used a scorecard against those who did not. In Kwale, 50% have used a scorecard, compared to 52% who have not. In Kilifi, 50.0% have used a scorecard, compared to 48% who have not.

RMNCAH Performance

According to Figure 1, only 16 (13%) of the facilities have ever used a scorecard to monitor RMNCAH performance.

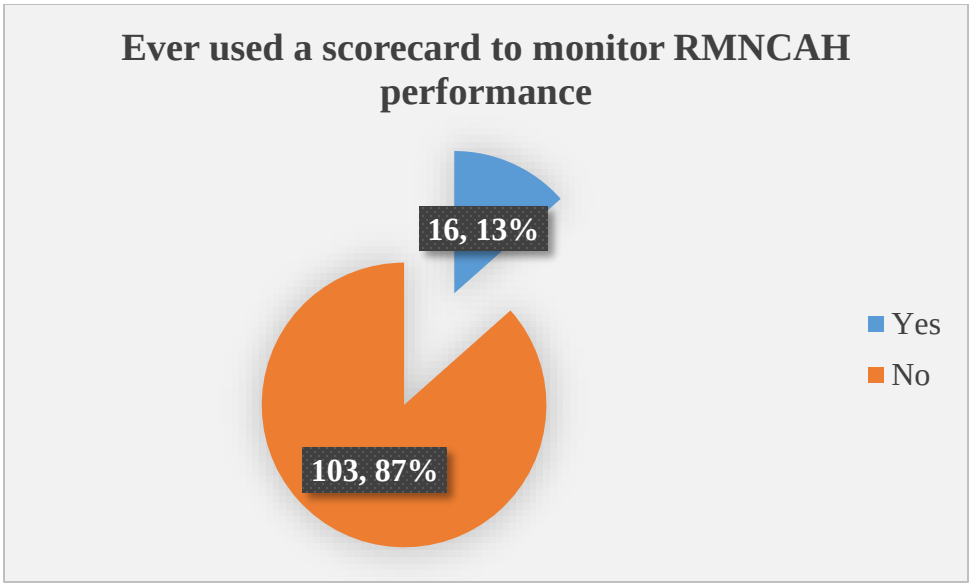

Figure 1: Ever Used a Scorecard to Monitor RMNCAH Performance

According to the findings in Table 1, a majority of the facilities—106 (89%)—analyze RMNCAH indicators. Nurses, comprising 78 (74%), and health records information officers, comprising 17 (16%), conduct the majority of these RMNCAH analyses. Specifically, most analyses of RMNCAH indicators focus on immunity (103 (97%), skilled birth attendants (79 (75%), family planning (100 (94%), and nutrition (82 (77%). Moreover, 89 (84%) of the facilities primarily conducted RMNCAH analyses monthly, while 15 (14%) conducted them every quarter. On the other hand, only 23 (19%) of the facilities have tools in place to support the analysis of RMNCAH data. Unfortunately, most of the facilities do not use known national ministry of health data sources to analyze data, and only one facility (4%) uses KHIS as the source of data for analyzing RMNCAH indicators.

Table 1: Health System Structural Factors Part A

Item, (N=119)	N	%
Facility analyze data on RMNCAH		
Yes	106	89%
No	13	11%
Who analyzes RMNCAH indicators		
Nurse	78	74%
RCO	3	3%
HRIO	17	16%
Others	8	8%
Specific RMNCAH areas analyzed:		
Skilled birth attendant	79	75%
Immunization	103	97%
Family planning	100	94%
Nutrition	82	77%
Others	22	21%
Frequency of RMNCAH analysis		
Monthly	89	84%
Quarterly	15	14%
Every day/Adhoc	2	2%
Facility has tools in place to support analysis of RMNCAH data		
Yes	23	19%
No	96	81%
Specific RMNCAH data analysis data sources		
KHIS	1	4%
Calculators	1	4%
Nonspecific including papers	23	100%

Table 1a: Scorecard Use and Various Factors Related to RMNCAH Data Analysis

	Ever used a scorecard to monitor RMNCAH performance?		p-value
	Yes (%)	No (%)	
Facility analyze data on RMNCAH			
Yes	13(81.25)	93(90.29)	0.281
No	3(18.75)	10(9.71)	
RMNCAH is data analyzed by			
Nurse	9(56.25)	69(66.99)	0.672
RCO	1(6.25)	2(1.94)	
HRIO	2(12.50)	15(14.56)	
Others	1(6.25)	7(6.80)	
RMNCAH areas analyzed: Skilled birth attendant			
No	2(12.50)	9(8.74)	0.465
Yes	11(68.75)	84(81.55)	
RMNCAH areas analyzed: Immunization			
No	0(0.00)	3(2.91)	0.458
Yes	13(81.25)	90(87.38)	
RMNCAH areas analyzed: Family planning			
No	1(6.25)	5(4.85)	0.53
Yes	12(75.00)	88(85.44)	
RMNCAH areas analyzed: Nutrition			
No	1(6.25)	23(22.33)	0.233
Yes	12(75.00)	70(67.96)	
RMNCAH areas analyzed: Others			
No	13(81.25)	71(68.93)	0.093
Yes	0(0.00)	22(21.36)	
Frequency of RMNCAH analysis			
Everyday	0(0.00)	1(0.97)	0.838
Monthly	11(68.75)	78(75.73)	
Quarterly	2(12.50)	13(12.62)	
Adhoc	0(0.00)	1(0.97)	
Tools available			
No	13(81.25)	83(80.58)	0.95
Yes	3(18.75)	20(19.42)	

Furthermore, the results in Table 2 indicate that most facilities—93 (78%)—have specific program/RMNCAH targets. However, only 13 (11%) of the facilities have a specific budget for monitoring and evaluation. Additionally, the majority of the facility staff—110 (92%)—meets to discuss RMNCAH performance.

According to Table 3, 101 (92%) of the respondents supported the bottlenecks discussed during the meetings, and the priorities agreed on how to improve the situation. However, six (5%) of the

respondents disagreed with the bottlenecks discussed and agreed on the priorities for improving the situation.

Moreover, according to the findings, 85 (71%) respondents agreed with the facility sharing and disseminating the information generated for social accountability, whereas 29 (24%) disagreed. The findings further indicated that a larger group of respondents, 49 (58%), preferred review meetings as the best mechanism to disseminate the information. Additionally, 14 (16%) chose to use talk-wall charts and graphs as a better method. Furthermore, 11 (13%) respondents preferred to disseminate information through community barazas. Also, nine (11%) suggested annual reports as a mechanism to disseminate the information.

Table 2: Health System Structural Factors Part B

Item	N	%
Facility has specific program / RMNCAH targets		
Yes	93	78%
No	21	18%
DK	5	4%
Facility has specific budget for monitoring and evaluation		
Yes	13	11%
No	103	87%
DK	3	3%
Facility staff meet to discuss RMNCAH performance		
Yes	110	92%
No	9	8%
Bottlenecks discussed during the meetings and priorities agreed on how to improve the situation		
Yes	101	92%
No	6	5%
DK	3	3%
Facility share / disseminate information generated for social accountability		
Yes	85	71%
No	29	24%
DK	5	4%
Mechanism used to disseminate the information		
Annual reports	9	11%
Chalk and board	2	2%
Community barazas	11	13%
Talk wall- charts and graphs	14	16%
Review meetings	49	58%

A chi-square test was conducted to identify RMNCAH data analysis related factors associated with scorecard use. The findings in Table 2a indicate the factors influencing RMNCAH indicator analysis at the public primary facilities. According to the findings, most facilities that have specific targets and monitor RMNCAH indicators are more likely to use scorecards (93.8%), with a statistically significant p-value of.012. Similarly, facilities that have a monitoring and evaluation budget commitment also show a higher likelihood of using scorecards, as evidenced by the 31.3% and a p-value of 0.017. All facilities where all staff normally meet and discuss RMNCAH

performance used scorecards (100%), although this finding was not statistically significant with any p-values of 0.001, 0.01, or 0.05. The results also showed that public primary facilities, which share information for accountability, tend to use scorecards at a rate of 75%, although the p-value of 0.66>0.05 did not statistically significantly support the findings.

Table 2a: Scorecard Use and Various Factors Related to RMNCAH Data Analysis

	Ever used a scorecard to monitor RMNCAH performance?		p-value
	Yes (%)	No (%)	
Facility has specific program /RMNCAH targets			
Yes	15(93.75)	78(75.73)	0.012
No	1(6.35)	20(19.42)	
Don't know	0(0.00)	5(4.85)	
Facility has specific budget for monitoring and evaluation			
Yes	5(31.25)	8(7.77)	0.017
No	11(68.75)	92(89.32)	
Don't know	0(0.00)	3(2.91)	
Facility staff meet to discuss performance			
Yes	16(100.00)	94(91.26)	0.219
No	0(0.00)	9(8.74)	
Bottlenecks discussed during the meetings and priorities agreed on how to improve			
Yes	15(93.75)	86(83.50)	0.554
No	1(6.25)	5(4.85)	
Don't know	0(0.00)	3(2.91)	
Facility share/disseminate information generated for social accountability			
Yes	12(75.00)	73(70.87)	0.666
No	4(25.00)	25(24.27)	
Don't know	0(0.00)	5(4.85)	
Mechanism used to disseminate the information			
Annual reports	2(12.50)	7(6.80)	0.938
Chalk and board	0(0.00)	2(1.94)	
Community Barazas	2(12.50)	9(8.74)	
Talk wall – charts an	2(12.50)	12(11.65)	
Review meetings	6(37.50)	43(41.75)	

The findings in Table 3 indicate that 56 (47%) of the respondents believed that their education and training in monitoring and evaluation were good. Furthermore, more than half (68, or 57% of the

respondents) believed that the leadership support received from management was also good. Similarly, of the respondents, 67 (56%) confirmed that support supervision, which includes proactive follow-ups, is good. Unfortunately, about a third (38, or 32%) of the respondents believed that their health workforce capacity, including skills and numbers, was poor. Finally, about half of the respondents—58 (49%)—believe that the organization's culture in terms of information use is good.

Table 3: Rating the Health System Structural Factors Part C

Statements	Poor, n (%)	Fair, n (%)	Good, n (%)	Very Good, n (%)
Education and training on monitoring and evaluation	6 (5)	57 (48)	51 (43)	5 (4)
Leadership support received from management	1 (1)	44 (37)	68 (57)	
Regular support supervision – proactive follow-ups	4 (3)	39 (33)	67 (56)	
Health workforce capacity - skills and number	38 (32)	60 (50)	20 (17)	
Organization culture in terms of information use	10 (8)	48 (40)	58 (49)	3 (3)

Overall, the rating of the health system structural factors; 67 (63%) remains low as indicated in Figure 2.

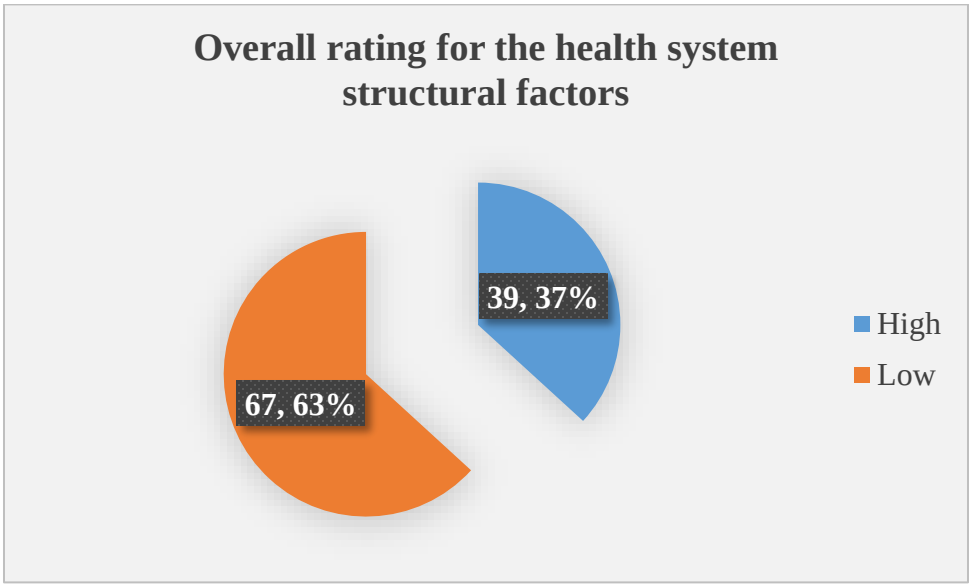

Figure 2: Overall Rating for the Health System Structural Factors

Table 3a: Scorecard Use and Various Factors Related to RMNCAH Data Analysis

	Ever used a scorecard to monitor RMNCAH performance?		p-value
	Yes (%)	No (%)	
Overall rating			
Low	6(37.50)	41(39.81)	0.338
High	6(37.50)	33(32.04)	

According to the results in Table 1a, 2a and 3a, none of the factors related to RMNCAH data analysis were associated with the use of the scorecard at either $p<0.05$, or 0.01 or 0.001.

Discussion

The findings from the present study provide interesting insights into the factors associated with the use of scorecards for monitoring RMNCAH (reproductive, maternal, newborn, child, and adolescent health) performance in healthcare facilities.

According to the results, only 13% of the facilities have ever used a scorecard to monitor RMNCAH performance, despite the fact that the majority of these facilities (89%) actually analyze RMNCAH indicators. We can attribute this low use of scorecards to a lack of training and resources. Furthermore, our findings indicate that facilities lacking training are less likely to use scorecards effectively. As a result, training is critical for implementing RMNCAH monitoring tools to build the skills and competencies of these healthcare workers on monitoring and tracking the RMNCAH performance. Conversely, facilities that had utilized a scorecard reported having received training. This finding aligns with the arguments made by [15], emphasizing the importance of a learning environment, continuous quality improvement efforts, and targeted training to support the effective adoption of scorecard systems.

Interestingly, the study found that 75% of the facilities did not indicate the specific type of scorecard they received training on, yet they nonetheless utilized them. Further analysis revealed a statistically significant correlation between the type of scorecard and its usage ($p<0.001$). This suggests that the type of scorecard and the training provided on its use may play a crucial role in determining the extent and effectiveness of its implementation.

In addition, the findings indicate a high frequency of analyzing RMNCAH indicators on a monthly basis, as evidenced by 84% of the facilities mainly focusing on immunization and family planning. This monthly analysis may be associated with an acknowledgement of the importance of these RMNCAH indicators in improving population health outcomes. However, the lack of the necessary tools to support RMNCAH analysis, as evidenced by the 81% of the facilities, is an indicator of a health systemic issue that could hinder effective monitoring.

Despite frequent analysis, RMNCAH performance received poor ratings from the providers, as evidenced by 75% of the facilities rating it low or poor. This finding demonstrates that frequent analysis of the RMNCAH indicators does not actually translate into improved health outcomes. This poor rating could be attributed to several data quality elements, including the quality of the data, the interpretation and use of the data, and the implementation of strategic recommendations, all of which could significantly contribute to a poor rate of RMNCAH performance. Therefore,

this implies a need to integrate the RMNCAH performance into routine performance strategy plans.

The findings further indicate some disparities in the allocation of resources. For example, only 11% of the facilities reported having allocated some budget for monitoring and evaluation, yet 78% of these facilities had RMNCAH indicator targets. Without budget allocation for monitoring and evaluation of program activities, these facilities prioritize immediate healthcare delivery over sustainable performance tracking. This non-need-based budgeting is a barrier to the facility's capacity to assess and improve healthcare outcomes.

However, some of these findings are contrary to other past studies. For example, a study showed that facilities in remote areas typically faced challenges in implementing scorecards because of the limited access to resources, including data. The current study found that most of the rural healthcare facilities utilized scorecards, while facilities in urban areas had never implemented them. This is in contrast with the study by [16], which suggested that facilities in remote or underserved areas may face more challenges in implementing scorecards due to limited access to data, technology, and supportive supervision. Similarly, Zulu et al. (2021) concluded that low-income facilities may encounter significant challenges in properly implementing and utilizing scorecards due to a lack of resources. Unique contextual factors, such as targeted interventions or capacity-building initiatives in the studied rural areas, may have facilitated the adoption and use of scorecards, potentially accounting for the observed discrepancy in the present study.

4.0 CONCLUSION AND RECOMMENDATIONS

This study has revealed key insights into the use of scorecards for RMNCAH performance in a health system, with a focus on primary health facilities in Kilifi and Kwale counties, Kenya. First, the frequent analysis of RMNCAH indicators did not result in the implementation of scorecards to identify training gaps and allocate resources. Remarkably, only 13% of the selected facilities had adopted the use of scorecards, indicating the need for targeted interventions to improve implementation in the primary health facilities. This study has identified key barriers to the use of scorecards, such as inadequate training and the absence of related tools, which have remained understudied in other past studies. The study further emphasizes the importance of integrating comprehensive training programs and resource allocation into performance healthcare strategy plans to improve RMNCAH outcomes. This study provides future research foundations and policy formulations that can improve monitoring and evaluation of health systems in low and middle-income countries, where health indicators and effective monitoring continue to face challenges.

This study adds a lot to the theory of primary health care (PHC) systems by using scorecards to keep an eye on the performance of RMNCAH indicators for reproductive, maternal, newborn, child, and adolescent health. This makes public PHC settings more accountable. By identifying existing barriers, the study will recommend practical solutions, including training programs to enhance healthcare workers' competencies in data analysis and scorecard utilization. Additionally, the findings will support policy advocacy for increased budget allocations towards research, monitoring, and evaluation frameworks, leading to more informed decision-making in resource mobilization and distribution within the health sector.

Ethical Consideration

This study was approved by Ethical Review Committee and National Council for Science, Technology and Innovation (NACOSTI). Administrative permission was further obtained from the Council of Governors, and County Health Directors. During data collection, researchers adhered to the principles of ethics, including informed consent to participate and consent to participate. All respondents were requested to individually sign a written informed consent after being informed about the purpose of the study and how it is likely to benefit him/her and the possible risks or discomforts. It was also clarified that taking part in the study was purely voluntary, and that their right to refuse or withdraw from the study at any time was guaranteed without injustice or loss of any benefits, and that they could stop participating at any time – even if they had already agreed to participate. Code number was used to identify participants in a password-protected computer database and all paper records were kept under locked file cabinet. All responses were anonymized for confidentiality and no one was allowed to access data other than principal investigator. During analysis participant anonymity were observed by removing personal identifiers.

Abbreviations

RMNCAH: Reproductive, Maternal, Newborn, Child, and Adolescent Health; OHS: Occupational Health and Safety; LMIC: Low and Middle-Income Countries; MMR: Maternal Mortality Rate; UHC: Universal Health Coverage; SDG: Sustainable Development Goals; MoH: Ministry of Health; NHIF: National Hospital Insurance Fund; KHIS: Kenya Health Information System; FBO: Faith-Based Organization; NGO: Non-Governmental Organization.

Competing Interests

Authors have declared that there are no competing interests

Author Contributions

The study was put together and designed by GNM and the first author conducted the study in Kilifi and Kwale, counties, Kenya. OJO carried out data analysis and drafted the manuscript. GNM reviewed and prepared the manuscript. GOO and KKR supervised and gave their technical input during the development of the study.

Disclaimer

The findings and conclusions presented in this manuscript are those of the authors and do not necessarily reflect the official position of Kenyatta University.

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