

Public Primary Health Facilities Autonomy: Findings from Tanzania Star Rating Assessment

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Abstract

Background: In many countries, health facility autonomy has been a crucial component of health sector reform. Reducing direct government control over public health facilities and increasing their exposure to the market and market-like forces are part of this reform strategy. The degree of financial independence is a crucial characteristic that determines health facility financing and it has an impact on how well public health facilities function. This study aims at ascertaining Primary Health Facilities autonomy in the context of Star Rating Assessment (SRA) in Tanzania.

Methods: This is a quantitative secondary data analysis using the SRA re-assessment data collected in the fiscal year 2017/18. Facility autonomy was measured by the desirable performance of six indicators, namely submission of a health facility plan,

having operational bank account, competent handling of funds and financial reporting, deposit of self-generated funds in a facility bank account, health facility receiving any part of budgeted funds for Other Charges (OC) or Health Sector Basket Funds (HSBF) and appropriate expenditure on health commodities as stipulated in Health Facility Plans guidelines. The proportions were compared by using one and two sample proportion Z and chi-square tests. We employed Poisson regression to ascertain factors influencing facility autonomy among public primary health facilities.

Results: This study involved 3,666 PHC facilities, the majority of which were dispensaries (97.6%) and rural located (85.9%). On average, 23.3% of health facilities were autonomous. 60.8% of urban located health facilities (95% CI=56.6%-65.0%) are autonomous which is higher than 56.7% of health facilities that are located in rural areas (95% CI=55.0%-58.5%), this difference is statistically significant ($p=0.008$). On the other hand, 84.6% of district hospitals were autonomous (95% CI=73.3%-96.0%) which is significantly higher compared to 57.0% of autonomous lower-level health facilities (health centers and dispensaries) (95% CI=55.4%-58.7%, $p<0.001$).

Conclusions: In Tanzanian PHC facilities, public primary health facility autonomy is a challenge. The challenge is more prevalent in rural located health facilities and lower-level PHC facilities (dispensaries and Health centers). Enhancing the effectiveness of Quality Improvement Teams (QITs) and Health Management Teams (HMTs) should be one of the measures considered in order to increase the autonomy of PHC facilities.

Keywords: Primary Health Care, Star Rating Assessment, Autonomy

1. Introduction

Health facility autonomiation has been an integral part of broader health sector reform in many countries. This is a reform approach that involves reducing direct government control over public hospitals and increasing their exposure to market and market like incentives [1,2]. The financing of public health facilities influences their performance with degree of financial autonomy being a key feature that defines health facility financing [3]. Financial autonomy refers to the level of control and influence that health facility managers have, to mobilize, allocate and spend financial resources [4].

There are several domains in hospital autonomy, some of which include strategic management which has the function of establishing vision and mission, establishing broad general objectives, managing hospital asset, and accounting for hospital policy administration to manage day-to-day management for example scheduling arrangement, room allocation, management information system, purchasing aspects which include drug, hospital equipment, and consumables, financial management which includes extracting financial resources, budget planning, accounting, and allocation of resources [5]. The granting of autonomy to health facilities is a pathway to operationalizing decentralization in health systems.

In the past three decades, several low-income and middle-income countries (LMICs) have implemented decentralization reforms with the aim of improving the equity, efficiency and accountability of government service delivery [4,6]. Three dimensions of decentralization interact to influence the experience and outcomes of decentralization; fiscal, political and administrative [7]. In Tanzania, decentralization reforms have been part of the health sector reforms (HSRs) that introduced in 1994 which have helped to improve service delivery in the sector [8,9]. However, a recent study has noted that the HSRs did not achieve the intended outcome probably due to its design in which it “Focused on the content of the reform and neglected the main actors, the processes contingent

on implementing the reform and the context within which it was developed” [10].

While the impact of health financial autonomy has been reported as mixed (enhancing health systems goals in some instances, and not doing so in other instances) and contingent on other factors, there is evidence that it may enhance the efficiency of resource allocation and operations, and responsiveness of public health facilities [11,12]. For instance, hospital financial autonomy reforms have been shown to improve the technical efficiency (where outputs are maximised for a given level of resources or vice versa) of hospitals in Columbia, Uganda and Kenya [13-15].

Increasing the managerial autonomy with which hospitals conduct their own affairs is expected to increase hospital revenue and reduce hospitals’ burden on the central public budget, while on the other hand, lack of financial autonomy can compromise health facility functioning in several ways as inadequate autonomy can constrain access to resources, and compromise allocative efficiencies by misaligning priorities and reducing the responsiveness of health facilities to local health needs. Inadequate autonomy can also introduce operational inefficiencies because of bureaucratic delays, poor staff motivation and stock outs of essential supplies [16-21].

Inadequate autonomy has also been shown to weaken health facility leadership, management and accountability [4]. While decentralization is often expected to enhance financial autonomy at the local levels, evidence has shown that this is not always the case [4]. For instance, in Kenya decentralization resulted in a counter-intuitive recentralization of autonomy over financial management from the public health facility level to the local government level and therefore, understanding the factors that influence public health facility financial autonomy is pertinent to developing strategies to addressing prevailing challenges [3].

In Tanzania, being one of financial reforms consideration, the implementation of decentralization policies in the health sector has adopted fiscal decentralization through Direct Health Facility Financing (DHFF) to primary healthcare (PHC) facilities in fiscal year 2017/2018 with the aim of granting autonomy to health facilities in setting their own priorities and effective use of available resources [22]. Evaluation has shown DHFF to be acceptable and has suggested some moderating factors for its acceptability (including *sex, work experience, knowledge, supportive work environment and capability to implement it*) that need to be focused on for its successful implementation [23].

In addition, DHFF has shown positive impact on maternal health service delivery in Pangani District [24]. Alongside the introduction of DHFF was introduction of Facility Financial Accounting and Reporting System (FFARS), which aims to improve facility financial management [25]. Therefore, this study aims at ascertaining the extent to which health facilities are autonomous and highlights its determinant factors in the context of Star Rating Assessment (SRA).

2. Materials and Methods

2.1. Study Design

This study employed the use of analytical cross-sectional design to ascertain the autonomy of PHC facilities in the context of SRA conducted during the fiscal year 2017/2018. The health facility autonomy was measured in terms of submission of a health facility plans, having operational bank account, competent handling of funds and financial reporting, deposit of self-generated funds in a facility bank account, health facility receiving any part of budgeted funds for Other Charges (OC) or Health Sector Basket Funds (HSBF) and appropriate expenditure on health commodities as stipulated in Health Facility Plans guidelines [26].

2.2. Data Management and Analysis

Data were extracted from SRA database for each health facility. They were transposed and manipulated in Microsoft Excel to form a single dataset. The dataset was imported to Stata IC 15 and then cleaned and checked for completeness and outliers before descriptive and inferential statistical analysis. QGIS 3.24 Tisler aided Geospatial visualization. Chi square and two sample proportion Z tests were employed for comparing proportions and Comparative analyses were made to ascertain differences in percentage coverage of health facilities autonomy in reference to four (4) performance categories, i.e., less than 20%, between 20% to less than 40%, between 40% to less than 60% and greater than or equal to 60% assigned as poor, weak, good progress and good performance respectively. Furtherly, this study exhaustively analyzes and compares these components regionwide, in regard to facility characteristics embracing facility levels (District Hospitals, Health Centers and Dispensaries), facility location (Urban and Rural), Quality Improvement Teams (QITs) functionality, Health Facility Management Teams (HFMTs) functionality and availability of tracer medicines. In order to document the need to understand the broader subnational systems and context that may influence culture and effectiveness at the facility level, regionwide geospatial visualization was conducted [27].

We determined an association between binary variable (The facility being autonomous or not) and independent variables (Facility type, facility location, HMT functionality, QIT functionality and availability of tracer medicines) to estimate the predictors of facility autonomy at the PHC facilities. Multivariate Poisson regression model was used to estimate prevalence ratios regarding factors influencing health facility autonomy where Deviance and Pearson goodness-of-fit tests indicated a model being a perfect fit (2269.6, 1564.0, $p=1.00$) (Refer Figure 1). P value less than or equal to 0.005 were considered statistically significant.

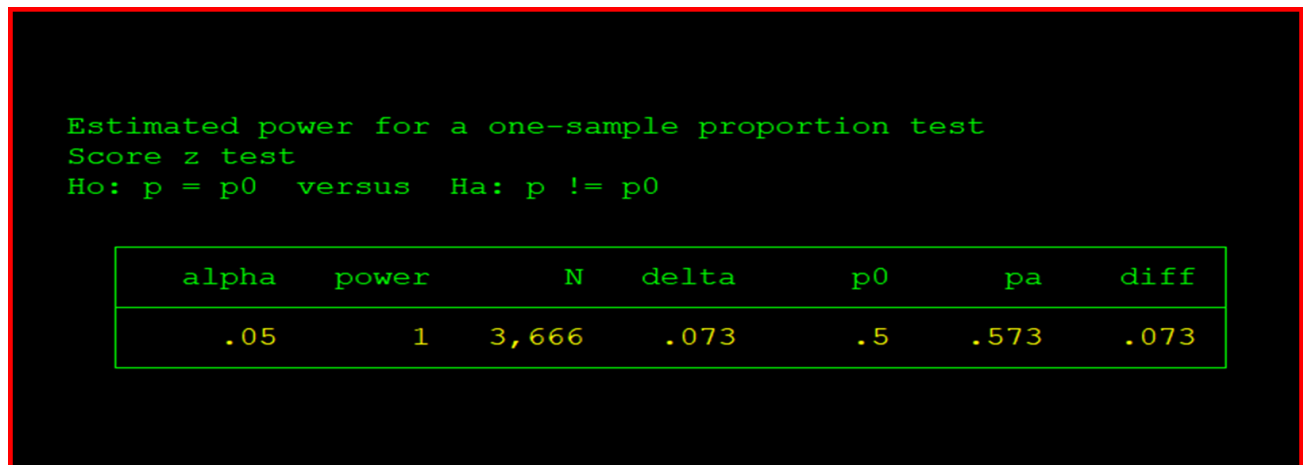


Figure 1: Outputs and Goodness of Fit Tests for a Poisson Regression Model

2.3. Power of the Study

Power refers to the probability that a significance test will produce a significant result when the null hypothesis is false [28]. Its major determinants are significance level and sample size with a desired level being 0.8 i.e., 80% [29,30]. To ascertain the extent to which PHC facilities autonomy prevails, one sample proportion z

test was employed. With a sample of 3,666 health facilities, significance level of 0.05 (5%) and prevalence of 0.573 (57.3%) of autonomous health facilities, the estimated statistical power of this study for one sample proportion z test is 1 (100%) as shown by stata outputs in Figure 2.

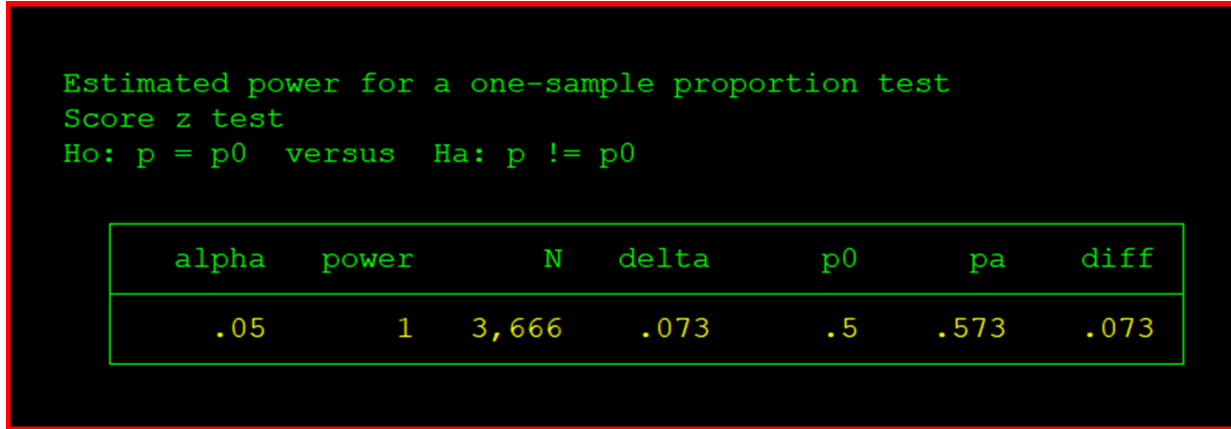


Figure 2: Estimated Statistical Power for One Sample Proportion Z Test

2.4 Definition of Study Variables and Constructs

SN	Variable Name	Variable Type	Variable Definition
1	Facility autonomy	Dependent variable	This considers having submission of a health facility plan, a facility having an operational bank account, competent handling of funds, deposit of self-generated funds, funds receipt (other charges, health sector basket fund, etc.) and appropriate expenditure on health commodities. All these criteria were to be met for a health facility to be considered autonomous.
2	QITs functionality	Independent variable	This is the dependent variable of the study. It considers presence of Quality Improvement (QI) team with terms of references, conduct of QI meetings (quarterly), self-internal assessment and documented QI activities. All these criteria were to be met for a QITs to be considered functional.
3	HFMTs functionality	Independent variable	This considers availability of HFMTs, appointed HFMTs members with well-defined terms of references and monthly management meetings conducted with recorded minutes. All these criteria were to be met for HFMTs to be considered functional.
4	Facility level	Independent variable	This refers to facility level of services entailing District Hospital, Health Center or Dispensary the former being higher level than the later.
5	Facility location	Independent variable	This refers to geographical location of health facilities as defined by Tanzania National Human Settlement policy (2000) i.e. Urban or Rural located.
6	Availability of tracer medicines	Independent variable	This entails availability of 10 tracer medicines (As provided in Health Management Information System) during the day of assessment.

Table 1: Study Variables and their Definition

2.5. Specific Questions Asked for Each Variable during Assessment

HMT functionality	
SRA Code	Description
2.1.5 1	HMT availability
2.1.5 2	Formal appointment of HMT with terms of reference

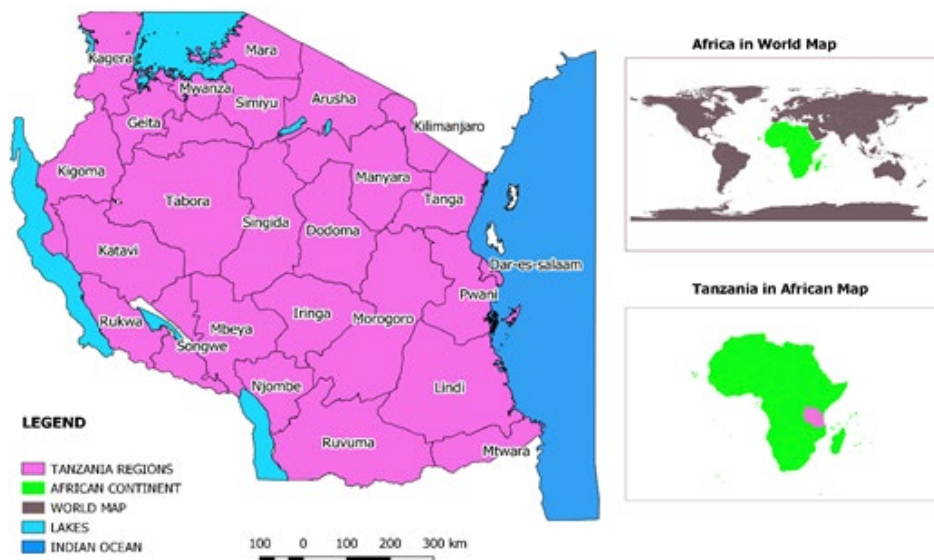
2.1.5.3	Regular HMT meetings
2.1.5.4	Quartely HMT meetings with minutes and action points
QIT functionality	
SRA Code	Description
2.1.6.1	QIT availability
2.1.6.2	QIT meeting on regular schedule
2.1.6.3	Quartely QIT meetings with minutes and action points
2.1.6.4	Quarterly QIT's internal self-assessment on quality of services
2.1.6.5	Have there been any documented QI activities (Past six months)
Availability of tracer medicines	
SRA Code	Description
12.1.3.1.	Availability of ten tracer medicines and health products on the day of assessment
Facility autonomy	
SRA Code	Description
2.2.1.1	Facility plan submission to HFGCs
2.2.1.2	CHMTs Written feedback on facility plan
2.2.1.3	Operating facility bank account
2.2.1.4	Competent handling of funds and financial reporting
2.2.1.5	Bank deposits of self-generated funds (Past six months)
2.2.1.6	Facility receipt of any part of budgeted funds
2.2.1.7	Appropriate percentage expenditure on medicines (Past six months)

Table 2: Specific Questions Asked for Each Variable during Assessment

2.6. Study Population

This paper aims at revealing the prevailing situation in as far as health facilities autonomy is concerned in PHC facilities in Tanzania by considering all 26 administrative regions (Figure 1) visited for second assessment in the financial year 2017/2018. This anal-

ysis involved 3,666 PHC facilities that account for 80.1% of visited public owned health facilities. To reduce bias of the findings, 19.9% of the visited PHC facilities were dropped from analysis due to having missing values on important variables regarding this study [31].



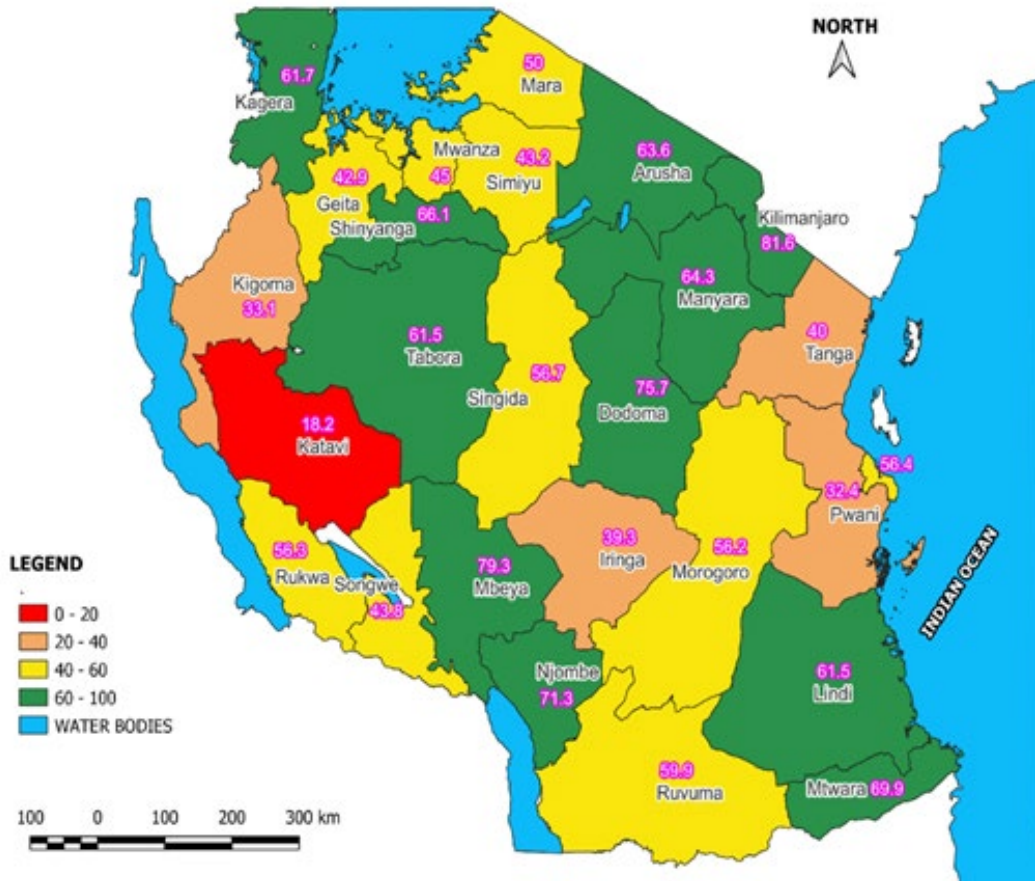
Source: Sketch on Geodata from National Bureau of Statistics 2021
Figure 2: Map of Tanzania Showing Distribution of Visited Regions

3. Results

3.1. Facility Autonomy

Findings reveal that 2,102 out of 3,666 (57.3%) of health facilities were autonomous, 60.8% of urban located health facilities (95% CI=56.6%-65.0%) are autonomous which is higher than 56.7% of health facilities that are located in rural areas (95% CI=55.0%-58.5%), this difference is statistically significant ($p=0.008$). On the other hand, 84.6% of district hospitals were autonomous (95%

CI=73.3%-96.0%) which is significantly higher compared to 57.0% of autonomous lower level health facilities (health centers and dispensaries) (95% CI=55.4%-58.7%, $p<0.001$). The region-wide coverage is shown geospatially in Figure 3. The figure shows that the most desirable performance coverage was at Kilimanjaro region (81.6%), poor and weak performance coverage were observed in Katavi (18.2%), Pwani (32.4%), Kigoma (33.1%) and Iringa (39.3%).



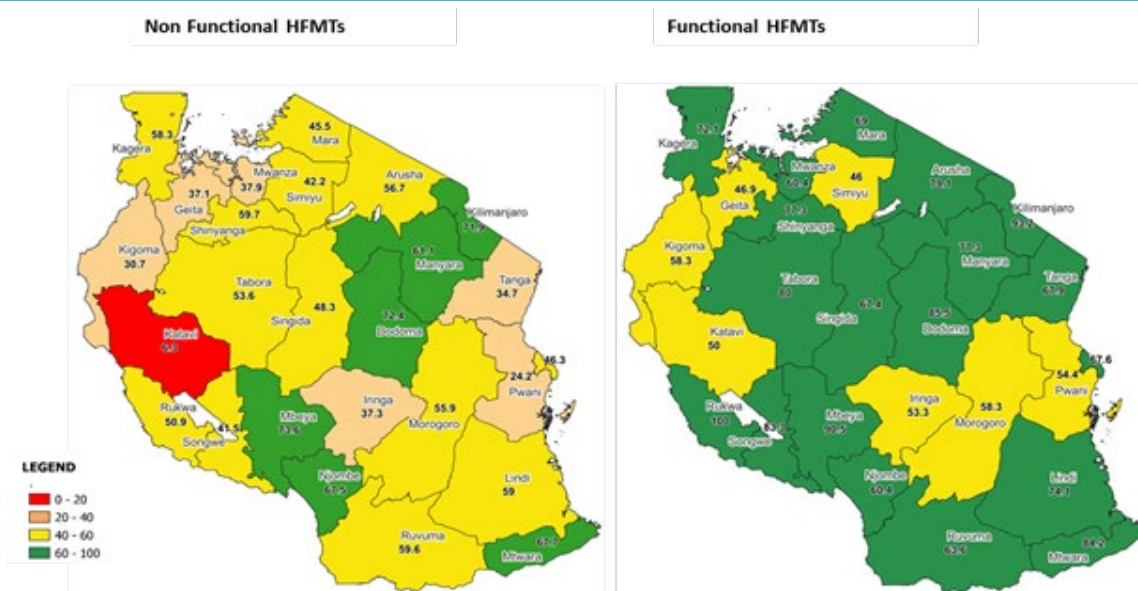
Source: Sketch on Geodata and SRA Data (2017/2018)

Figure 3: Facility Autonomy Region Wide

3.2. Facility Autonomy and HFMT Functionality

HFMT functionality was observed to have positive influence towards health facilities being autonomous. The findings revealed that, PHC facilities with functional HFMTs had 72.6% of autonomous health facilities (95% CI=69.7%-75.6%) which is significantly higher compared to 52.5% of health facilities with non-functional HFMTs (95% CI=50.6%-54.3%, $p<0.001$). As shown in Figure 4, satisfactory autonomy coverage is observed more in health facilities with functional HFMTs as none of the

health facilities with functional HFMTs had poor or weak coverage. This is different from health facilities with non-functional HFMTs where poor coverage was observed in Katavi (6.3%), Pwani (24.2%), Kigoma (30.7%), Tanga (34.7%), Geita (37.1%), Iringa (37.3%) and Mwanza (37.9%). In the remaining regions, higher coverage of facility autonomy was observed among health facilities with functional HFMTs compared to ones with non-functional teams.

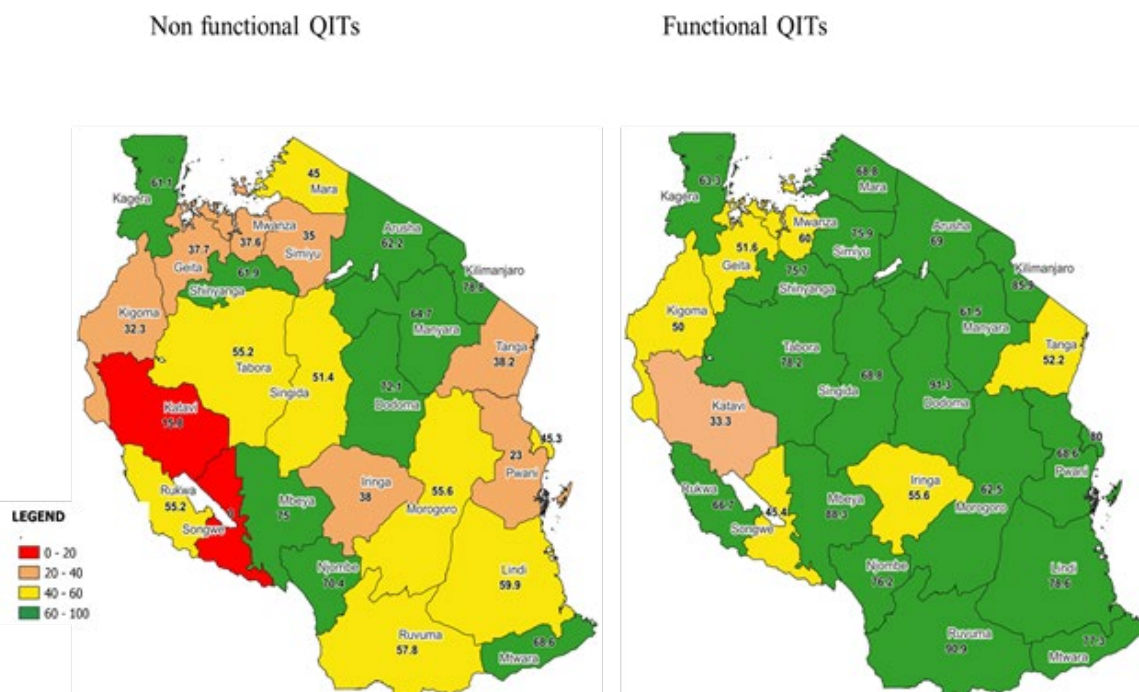


Source: Sketch on Geodata and SRA Data (2017/2018)
Figure 4: Facility Autonomy and HFMTS Functionality Region Wide

3.3. Facility Autonomy and QIT Functionality

QIT functionality was also observed to have positive influence towards health facilities being autonomous. The findings revealed that, PHC facilities with functional QITs had 72.7% of autonomous health facilities (95% CI=69.5%-76.0%) which is significantly higher compared to 53.5% of health facilities with non-functional QITs (95% CI=51.7%-53.3%, p<0.001). As shown by figure 5 below, regionwide satisfactory autonomy coverage is observed more in health facilities with functional QITs as none of health

facilities with functional QITs had poor coverage of autonomous health facilities, only one health facility had a weak coverage i.e., Katavi region (33.3%). The remaining regions had coverage ranging between 40% to 85.9%. This is different from health facilities with non-functional QITs where poor coverage was observed in Katavi (15.8%) and weak coverage in seven regions of Pwani (23.0%), Kigoma (32.3%), Simiyu (35.0%), Mwanza (37.6%), Geita (37.7%), Iringa (38.0) and Tanga (38.2%).

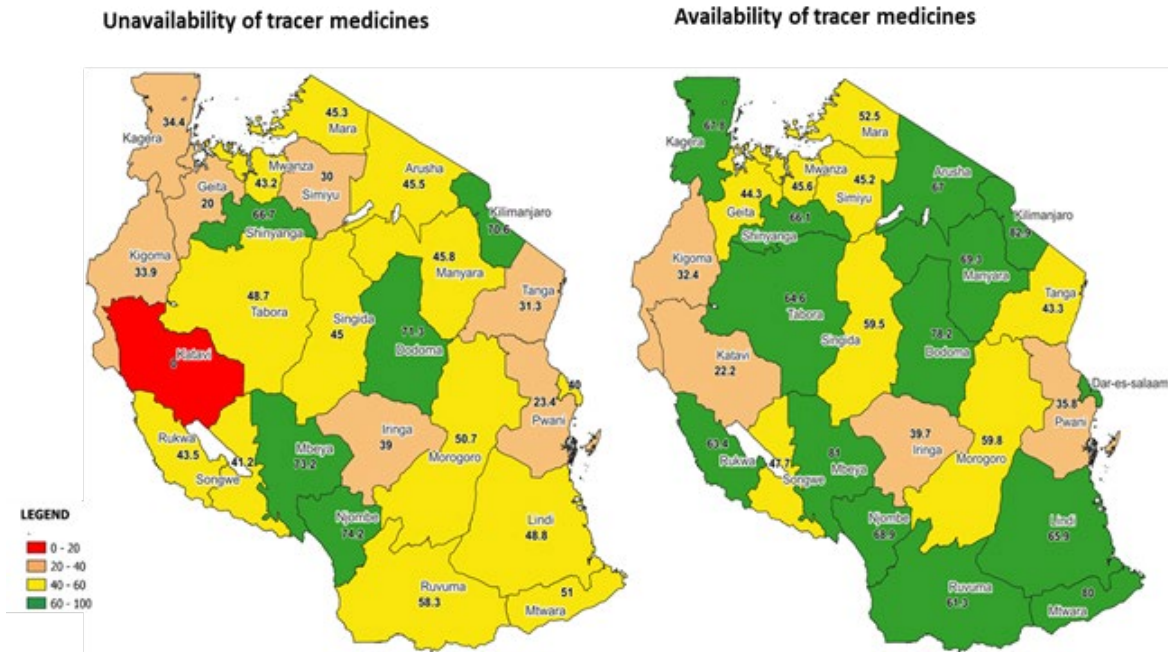


Source: Sketch on Geodata and SRA Data (2017/2018)
Figure 5: Facility and QITs Functionality Region Wide

3.4. Facility Autonomy and Availability of Tracer Medicines

Health facility autonomy highly influences availability of tracer medicines. The findings revealed that, among health facilities with availability of tracer medicines, 60.8% (95% CI=58.9%-62.6%) were autonomous. This is significantly higher compared to 48.8% of autonomous health facilities with no availability of tracer medicines (95% CI=45.8%-51.8%, $p < 0.001$). As shown in Figure 6

below, region wise autonomy coverage is observed more in health facilities with availability of tracer medicines as fourteen (14) regions had good coverage score of autonomous health facilities with none of them having poor coverage. Among health facilities with non-availability of tracer medicines, only five (5) had good coverage score and one region with poor performance coverage i.e., Katavi region (0%).



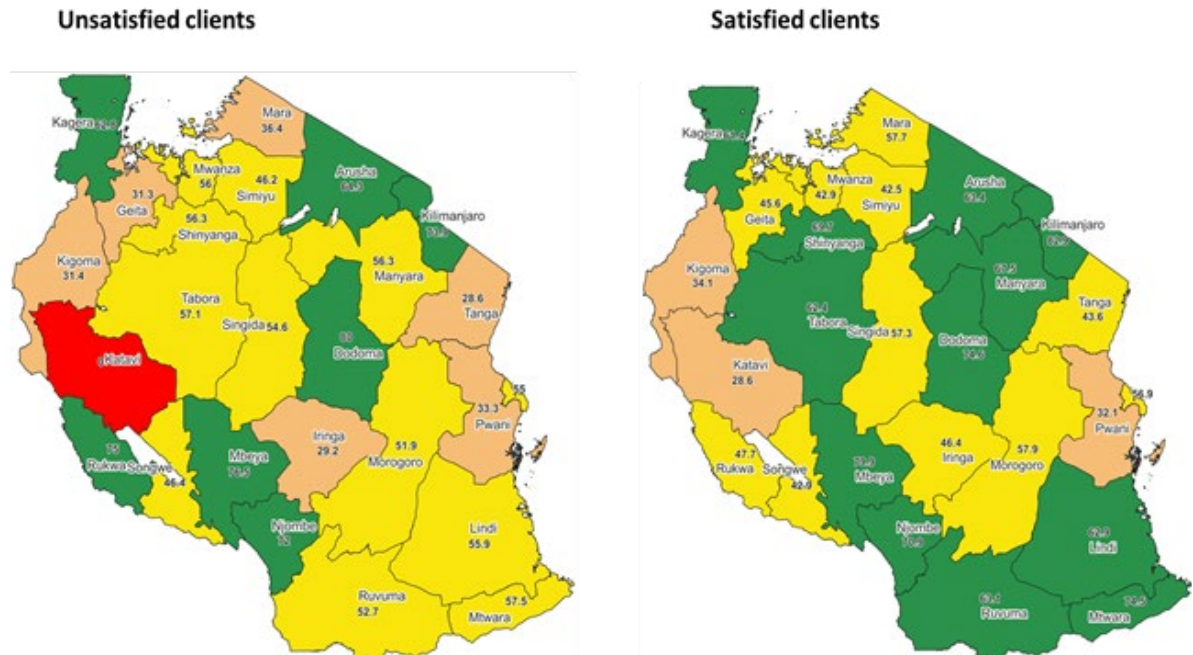
Source: Sketch on Geodata and SRA Data (2017/2018)

Figure 6: Facility Autonomy and Availability of Tracer Medicines Region Wide

3.5. Facility Autonomy and Client's Satisfaction

Health facility autonomy highly influences client's satisfaction to services offered. The findings revealed that, among health facilities with all three clients satisfied with services provision during the day of assessment, 58.9% (95% CI=57.1%-60.7%) were autonomous. This is significantly higher compared to 52.4% of autonomous health facilities with at least one client dissatisfied with services provision during the day of assessment (95% CI=49.2%-55.7%, $p < 0.001$).

As shown in Figure 7 below, region wise autonomy coverage is observed more in health facilities with satisfied clients as twelve regions had satisfactory coverage of autonomous health facilities with none of them having poor coverage [12]. Among health facilities with at least one client dissatisfied with services during the day of assessment, only seven (7) regions had good performance coverage with poor performance coverage observed in Katavi region.



Source: Sketch on Geodata and SRA Data (2017/2018)
Figure 7: Facility Autonomy and Client's Satisfaction Region Wide

3.6. Factors Influencing Facility Autonomy

As shown in Table 3 below, urban located health facilities are 2% more likely to have autonomous health facilities compared to rural located (APR=1.02, P = 0.604), health facilities with functional HFMTs are 26% more likely to have autonomous health facilities compared to health facilities with non-functional HFMTs (APR=1.26, P<0.001), health facilities with functional QITs are 20% more likely to have autonomous health facilities compared to health facilities with non-functional QITs (APR=1.20, P<0.001). There is no statistically significant difference in autonomous facilities among lower-level health facilities i.e., Dispensaries and

Health centers as Health centers are 9% more likely to be autonomous than dispensaries (APR = 1.09, P<0.343). On the other hand, district hospitals are 26% more likely to have autonomous health facilities compared to dispensaries (APR = 1.26, P=0.002) but 15% more likely to have autonomous health facilities compared to health centers (APR = 1.15, P=0.25). Nevertheless, availability of tracer medicines had an influence to health facilities being autonomous as health facilities with available tracer medicines at the day of assessment were 17% more likely to have autonomous health facilities compared to health facilities without availability of tracer medicines (APR = 1.17, P<0.001).

Factor Variables	Facility Autonomy (%)		Pearson chi2	Crude Measures (Prevalence Ratio)		Adjusted Measures (Prevalence Ratio)	
	YES	NO		PR (95% CI)	P-Value	PR (95% CI)	P-Value
Facility Location							
Rural	56.7	43.3	3.02	Reference		Reference	
Urban	60.8	39.2		1.07 (0.99,1.16)	0.072	1.02 (0.95,1.10)	0.604
Facility Type							
Dispensary	56.9	43.1	13.9	Reference		Reference	
Health Center	66.7	33.3		1.17 (0.96,1.43)	0.124	1.09 (0.91,1.33)	0.343
Hospital	84.6	15.4		1.48 (1.30,1.71)	< .001	1.26 (1.08,1.45)	0.002
HMT Functionality							
Non-Functional	52.5	47.5	110.84	Reference		Reference	

Functional	72.6	27.4		1.38 (1.31,1.46)	<0.001	1.26 (1.18,1.33)	< 0.001
QIT Functionality							
Non-Functional	53.5	46.5	87.2	Reference		Reference	
Functional	72.7	27.3		1.36 (1.28,1.44)	<0.001	1.20 (1.13,1.27)	< 0.001
Tracer Medicines							
Not available	48.8	51.2	44.23	Reference		Reference	
Available	60.8	39.2		1.25 (1.16,1.34)	< 0.001	1.17 (1.09,1.25)	< 0.001

Table 3: Factors Influencing Health Facility Autonomy

4. Discussion

It is claimed that with autonomy, hospitals can plan their services effectively, manage staff and other resources efficiently, respond flexibly and sensitively to patients' needs and provide appropriate and cost-effective primary, secondary or tertiary care as an integral part of the health system [16]. This corresponds to this study as findings of this study suggest that facility autonomy has positive effect on availability of tracer medicines and more importantly, functionality of key teams (HFMTs and QITs). The functionality of these teams is an important consideration to improved healthcare delivery and consequently enhance patient satisfaction [32,33]. Its poor functionality affects smooth implementation and operationalization of health facility has planned interventions [34]. As findings of this study reveal, HFMTs and QITs functionality are positive influencers of health facility autonomy. This may be due to the fact that these teams aid operationalization of activities that are said to strengthen a health facility including establishing vision and mission, establishing broad general objectives, managing hospital asset, and accounting for hospital policy, administration to manage day-to-day management for example, scheduling arrangement, room allocation, management information system, purchasing aspects which include drug, hospital equipment, and consumables, financial management which includes extracting financial resources, budget planning, accounting, and allocation of resources Appendix III [5].

5. Conclusions and Recommendations

Autonomy is a key consideration towards smooth operationalization of PHC facilities and hence delivery of health services that meet prescribed standards and consequently clients' expectations. Findings suggest that, autonomous health facilities are more likely to have availability of tracer medicines, they are also more likely to have clients satisfied with health services provided. Since HFMT and QIT functionality highly influence health facility autonomy, enhancing its functionality should be among interventions to be taken into consideration towards enhancing PHC facilities autonomy. More attention should be on lower-level health facilities (Dispensaries and Health Centers).

Conflict of Interests: The authors declare no conflict of interest.

However, during 2015/2016's and 2017/2018's Star Rating Assessment of PHCs that yielded these data, Dr Eliudi S. Eliakimu, Joseph C. Hokororo, Chrisogone J. German, Radenta P. Bahegwa, Talhiya A. Yahya, Omary A. Nassoro, Ruth R. Ngowi, Yohannes S. Msigwa, Mbwana M. Degeh, and Laura E. Marandu were working with the Health Quality Assurance Division (now called Health Quality Assurance Unit) and were responsible for the implementation of SRA and QIPs follow-up.

Authors' contributions:

- **Conception and design:** Eliudi S. Eliakimu, Syabo M. Mwaisengela, Erick S. Kinyenje, Joseph C. Hokororo, Chrisogone J. German Radenta P. Bahegwa, Yohanes S. Msigwa, Mbwana M. Degeh, Laura E. Marandu, Lilian D. Lyakurwa, Alpha E. Cholobi, Bushi N. Lugoba, Edwin C. Mkwama, Talhiya A. Yahya, Mohamed A. Mohamed, Omary N. Kipuli and Ruth R. Ngowi
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- **Critical revision of the manuscript for important intellectual content:** Eliudi S. Eliakimu, Syabo M. Mwaisengela, Michael F. Habtu, Erick S. Kinyenje, Joseph C. Hokororo, Chrisogone J. German Radenta P. Bahegwa, Yohanes S. Msigwa, Mbwana M. Degeh, Laura E. Marandu, Lilian D. Lyakurwa, Alpha E. Cholobi, Bushi N. Lugoba, Edwin C. Mkwama, Talhiya A. Yahya, Mohamed A. Mohamed, Omary N. Kipuli and Ruth R. Ngowi
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- **Supervision:** Eliudi S. Eliakimu, Joseph C. Hokororo, Mbwana

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Disclaimers

The authors declare that the views expressed in this manuscript are their own and do not necessarily represent views of the institutions they are affiliated to.

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