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Technical factors influencing family planning data management process in private hospitals in Ilala Municipal Dar Es Salaam, Tanzania: A qualitative study

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Abstract

Introduction: Sound and reliable information is the foundation of decision-making across all health system building blocks. Strengthening the health information system is a global concern, especially in developing countries where data management is reported to be weak. In Tanzania, the family planning data management process is faced with discrepancies, such as completeness, timeliness, and accuracy thus calling for a need to explore technical factors that influence it.

Objective: To explore technical factors influencing the family planning data management process among private hospitals in Ilala Municipal Council.

Methodology: It was a cross-sectional explorative study design that used a qualitative approach. In-depth interviews were conducted by using the semi-structured interview guide. Twelve participants were involved. The study participants were purposively sampled. They included the health secretary, reproductive and child health in-charge, a nurse, and the data focal person. An inductive content analysis approach was used during data analysis.

Results: Poor data quality characterized by inaccuracy, inconsistency and untimely recording and transferring to DHIS2, inadequate skilled manpower, and poor capacity building were the factors influencing the family planning data management process.

Conclusion: The family planning data management process is affected by numerous factors, among which are poor data quality, inadequate skilled manpower, and poor capacity building. The MTUHA book 8 should be reviewed by the Ministry of Health and other implementing partners to ensure curative pill data are being captured.

Keywords: Data Management, Family Planning, Technical Factors, Health Management Information System, Contraceptives, District Health Information System

Introduction

Health systems require quality data from Health Management Information System (HMIS) to plan for and ensure that the workforce is fully funded and equipped with the necessary commodities, infrastructure, resources, and policies to deliver services. Quality health data are, in and of itself , a prerequisites to improving each of the other five building blocks of the health systems (Nutley, 2012). The Global Alliance for Vaccines and Immunization (GAVI) has initiated the Data Quality Audit (DQA) to improve the monitoring progress of health services (Matsuoka et al., 2014). In low-income countries, there are different initiatives to improve the quality of health data, including Health Metrics Networks and Performance of Routine Information System Management (PRISM) (Nutley & Reynolds, 2013).

In most developing countries, each of the HIS stages of collection, collation, compilation, analysis, and reporting of HMIS data is burdened by major problems ranging from inadequate human resources (who mostly cannot undertake the assigned tasks) to excessive and uncoordinated

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reporting requirements (Karuri et al., 2014). The data collection process faces challenges like poor supply of tools, timeliness of reporting, poor understanding of data collection tools, duplication/overlap of data tools, too much to collect, and low data quality.

In 2011, the Pwani region was used as a testbed for paper-based data collection tools and the District Health Information System (DHIS2). Two years of the revised systems were rolled out to the remaining 24 regions and associated districts and health facilities on the Tanzanian mainland. On completion of this rollout, efforts were directed towards the integration of all major vertical programs such as malaria, tuberculosis (TB)/leprosy, Reproductive and Child Health (RCH), and HIV/AIDS into DHIS2. Since 2014, DHIS2 has been integrated with other software systems, enabling health workers to cross-cut, analyze, and share data across organizations (THDC, 2017).

Maternal, newborn, and child health care, is one of the key components of the National Package of Essential Reproductive and Child Health Interventions, focusing on improving the quality of life for women, adolescents, and children. Maternal, newborn, and child outcomes, are interdependent, and maternal morbidity and mortality impact neonatal and under-five survival, growth, and development (National Family Planning & Message Guide, 2013). It is noted that family planning is critical for preventing unintended pregnancies and unsafe abortions, ultimately contributing to reducing maternal and child mortality. Family planning also contributes to the reduction of poverty and empowers men and women to freely and responsibly choose the number and spacing of children (Brosche, 2016).

In Tanzania the government introduced the National Family Planning Costed Implementation Program guideline (NFPCIP). NFPCIP shows that monitoring and evaluation (M&E) systems need strengthening. The 'way forward' calls for investments in developing a comprehensive M&E and research strategy for the health and social welfare sector that is integrated with the health management information system (HMIS). For the NFPCIP, this includes having adequately trained personnel to collect, report, analyze, and use family planning (FP) data for oversight of plan implementation and to recognize needs for and make decisions (NFPCIP, 2010).

National HMIS guidelines have been developed and are accompanied by training materials. The guidelines spell out the objectives of the HMIS system, describe the system in detail, contain all the data collection tools (registers, tally sheets, and summary forms) for every health program, and contain instructions on how to use each data collection tool within the HMIS. Data on family planning services is collected using the family planning register, MTUHA book 8, tally sheet, and a summary report daily at the facility level. Every month, data are summarized using a standardized monthly facility report that is sent to the sub-district information office. Data are entered into DHIS2, from which the electronic export file is exported to the district information office (MoHCDGEC, 2016).

When these data are summarized in the monthly facility report for DHIS2, there are some challenges facing data quality, including but not limited to poor numeracy skills by the healthcare workers, poor understanding of indicators, high staff turnover, and unstandardized collection tools (Garrib et al., 2008). Another problem commonly cited with HIS systems in these countries is the lack of data ownership, leading to a situation where there is no incentive for health workers at levels below the national level to analyze, use, and interpret health data (Aqil A. et al., 2010).

The use of family planning contraceptive methods among married women aged 15-49 years and young women age 20-24 years is still low, with a prevalence of 22% and 23.5%, respectively (Brosche, 2016). This indicates there is a mismatch between the quantities of contraceptives distributed and the data reported. This implies that there are challenges in the data management process implementation, especially in the context of the collection, compilation, and entry into DHIS2. A study done in Kenya revealed problems facing data entered into DHIS2 are due to inadequate training for users, low deployment to all facilities, and a lack of management support. Even those that

have deployed were not fully utilizing the system to generate important information for use at the facilities (English et al., 2014).

Little is known about the quality of the family planning data management process and its influencing factors, especially in private health facilities where a huge disparity is experienced (Ministry of Health and Social Welfare, 2018). To improve the performance of the RHIS for family planning, this study explored technical factors influencing the family planning data management process.

Methods

Study design

An audit evaluation design adopting a qualitative approach was deployed to explore technical factors influencing the family planning data management process among private hospitals in Ilala Municipal. The audit was used to examine the set procedures in the national guideline of 2017 for family planning data on the data management process. The qualitative approach helps to uncover trends in thought and opinions and dive deeper into the problem. It also provides insights into the problem and helps develop ideas for potential quantitative research. This enabled us to get the experience of the respondents concerning our matter of interest (Cochran, 2002).

Study setting

The healthcare system in Tanzania is organized in a pyramid shape with three levels of healthcare service provision (Kwesigabo et al., 2012). The study was conducted in private hospitals that are in Ilala Municipal Council, Dar es Salaam. Ilala has more private hospitals on a regional level, compared to other municipals in Dar es Salaam. It has six private hospitals at a regional level which are Burhani, Hindu Mandal, Regence, Aga Khan, and Tumaini hospitals.

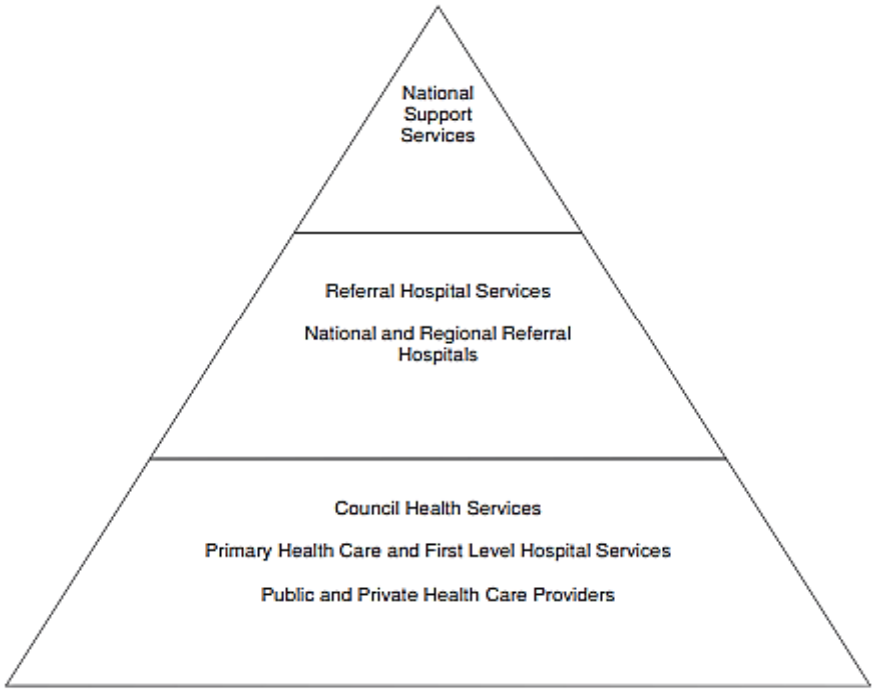

Figure 1: Health system in Tanzania(Source: The United Republic of Tanzania; Ministry of Health and Social Welfare (Ministry of Health and Social Welfare [Tanzania], 2008).)

Data collection

Qualitative methods using in-depth interviews with twelve purposively selected key informants from five private hospitals were done. They were selected based on their knowledge of the study of interest. Data were recorded using a digital recorder.

Data analysis

Audio-recorded interviews were transcribed verbatim and then translated from Swahili to English. Data were analyzed by using inductive content analysis to capture the experience of the participant (Erlingsson & Brysiewicz, 2017). All authors read and re-read the full transcript to identify the sense of the whole interview. Texts were divided into meaning units, and the latter were condensed while keeping the core meaning. The next step was to label condensed meaning units by formulating codes and then codes were grouped into categories. Analysis was done using QSR International NVivo12 (QSR International Pty Ltd, 2018) into themes to identify emerging trends between and within variables.

Results

Socio-demographic characteristics

The study involved 12 key informants, 10 from five private hospitals (1 nurse and 1 RCH in charge from each hospital) 1 health secretary, and 1 data focal person.

Table 1: Summary of key informants from Ilala Municipal Council

Key informant	No. of KIIs
Nurses	5
Reproductive and Child health in charges (RCH)	5
Health secretary	1
Data focal person	1
Total	12

Technical factors Influencing Family Planning Data Management Process

Poor data quality

Inaccurate data characterized by wrong data recorded in the MTUHA book 8, un-entered data, and unavailability of treatment data were found to affect the data management process. Informants from this study revealed that it has been difficult to capture some information especially when family planning products have been used for treatment so that they can be excluded. The latter leads to the lumping of family planning products that have been used for treatment with the ones used for family planning purposes, which have been lumped together.

"The register does not have a component for treatment, therefore if a patient is administering an injection as part of treatment when it comes to incorporating such information into a register. it becomes impossible. Therefore, we recommend such a part has to be included in the updated version of the register" (KI-01)

Informants recommended that the register needs to be improved so it can capture all important information to have quality and reliable statistics. Dissemination of information is one of the key parameters of the research; it was found that the reports are disseminated every three months. This study suggests the monthly dissemination of reports.

"Registers have to be improved so that only specific indicators have to be included and reports should be disseminated every month."(KI-08)

Inconsistent data attributed to unstructured book, redundant data, mismatching of registers' data with that entered in DHIS2, and duplicates were mentioned as affecting the family planning data management process. It has been noted that data are not timely entered into the system due to

limited time allocated for data entry and having multiple tasks within hospitals. Informants also revealed that little attention has been given to data entry; this has led to untimely data entry and hence delays in the reports and other planning. This happened in a private hospital where they have computers for entering data.

"There is untimely data entry and inconsistency of collected information due to errors from registers; this leads to having wrong statistics."(KI-03)

Confusion was found to be existing as spotted by key informants that there was a mismatch of register. This has been happening when the family planning commodities have been used for curative purposes. It has been difficult for them to capture such information.

"We do not have enough knowledge on how to capture information to register and there is some confusion, especially when family planning data have been used for curative purposes." (KI-02)

Inadequate skilled manpower

Informants revealed that health workers in the family planning department are sometimes over-tasked as they are overwhelmed with other responsibilities. They suggested that an adequate and competent number of nurses/staff for collecting and entering information into DHIS2 was required for the successful implementation of the HMIS project in selected hospitals and timely submission of reports. Findings have shown that there is a shortage of staff with knowledge of collecting, entering, and processing the collected data. This has lowered the speed of collecting, entering, and processing the family planning data.

"There are fewer staff with knowledge of HMIS especially data on family planning. You may find that among three nurses, only one is competent. Also, sometimes we have the problem of staff turnover as they shift to other NGOs." (KI-07)

HMIS knowledge was found to be among the most challenging factors in the family planning data management process. Findings show that respondents proposed the availability of a specialized nurse who deals with collecting and entering family planning data into DHIS2. This will improve efficiency, data quality, and timely submission of the reports. This strategy has been implemented by MDH, PSI, and so on. The availability of specialized nurses who will work on data management will also reduce the workload on other nurses as they will proceed with other duties according to their job descriptions.

"Some nurses should specialize in taking records for family planning and enter them into DHIS2; and they should not do other jobs as it has been done by MDH. This will help to improve the quality of the collected information."(KI-06)

Some nurses have been doing data collection using their own experiences, which may be one of the factors associated with the low quality of data. These nurses have not been trained elsewhere; they have acquired some skills by working with trained nurses. They have been entering data into the register using their own experience acquired from their fellows.

"We are doing it by experience; my fellow nurses were trained by PSI before joining the hospital."(KI-12)

Findings have shown that some hospitals do not have a specific person who understands how to enter data into DHIS2. Therefore, they normally do not send the report to Ilala Municipal and unfortunately, they do not have family planning products. This led to the under-coverage of information related to family planning as some information in the respective hospitals was not captured.

"We don't have family planning pills; we normally take records on family planning but we don't send a report as we don't have someone who knows how to enter data into the system. "(KI-09)

Poor capacity building

There are inadequate training opportunities in family planning data management. Most nurses who work in family planning data management units are not trained, and they have learned and acquired experience by being taught by those who attended the training in family planning data management.

This situation is quite different from government hospitals where nurses who do similar tasks have been trained. This brings the argument that nurses working in private hospitals have to be considered for training opportunities as this will lead to the improvement of data quality.

"There are inadequate training opportunities. Most of us have just been taught by the nurse who attended training, and normally the nurse cannot teach all of us due to limitations of time. Training should involve nurses working in private sectors and not public hospitals only. "(KI-01)

Findings have revealed that some nurses do not have competent knowledge and skills in filling the register, and they have also suggested expansion of their knowledge and reaching the capacity to be able to plug data into the DHIS2 system.

"I have little knowledge of how to fill the register. I was taught by my fellow nurse. I have also been wishing to know how to use the DHIS2 system." (KI-05)

More training is required, from data collection and processing to data analysis. There is an inadequate number of nurses who have been trained; this was pointed out by one of the key informants:

"Very few nurses have been trained on DHIS2, therefore those who have been trained are only those who enter data from the register into the system."(KI-02)

Findings from the Key Informants Interview have shown the need for continuous training on data management for nurses, and it has strongly been proposed that data have to be sent electronically direct from private hospitals. Nurses have to be trained on how to use the DHIS2 system so that data entry can be efficiently done at the hospital to minimize the time between data recording into the register and entry into DHIS2.

"Due to a shortage of trained nurses, some private hospitals have not been submitting their monthly reports on time. We suggest that data entry should be into DHIS2 at the hospital level and not at the council." (KI-06)

Findings have shown that nurses are not motivated to undertake data management tasks in papers. Results suggest that staff need to be recognized (non-financial incentive). Also, they need to be paid for working overtime. One of the key informants pointed out that;

"Sometimes you may find that you need to go home as working hours are already over, but you can't since there are clients to be saved. Unfortunately, you're not even recognized by the management as they think it is your responsibility. Not only do financial incentives motivate us, but even non-financial ones as well. This leads to inefficiency even in terms of data recording in the registers. " (KI-05)

Findings show that there are financial constraints that lower the speed of implementing the family planning data management process in the selected hospitals. There is no fund allocated for paying nurses who work overtime as sometimes clients come and seek services during late hours, whereby respective nurses have to enter all the required information into the register during the same time.

"The council has to set aside funds which may be used in supporting data collection through HMIS. Sometimes customers tend to come for services during the evening, but we cannot overstay after normal working hours, which therefore leads to low coverage of our data collection. " (KI-01)

The allocation of funds for supporting the family planning data management process has been evidenced in government hospitals. Nurses who work on family planning data management have been paid allowances, which have been a motivation for producing high-quality family planning statistics. NGOs such as Pathfinder have been encouraged to implement a similar strategy in private hospitals as well.

"There should be some allowance for working overtime, especially during the evening. Some of the NGOs such as Pathfinders have been supporting government hospitals by providing allowances to nurses. This should be done for private hospitals also." (KI-05)

Since the hospital does not get the direct benefit and does not consider undertaking data management on family planning as a task that the hospital has to provide some incentives for those

who have been working on it, then this leads to demoralization and hence lowers the strategy of harmonization of all family planning data.

"This work is so difficult and our employers are not putting much emphasis on it, it seems that the hospital does not get direct benefits therefore they don't provide any incentives for someone working in the family planning program"(KI-11)

It was also added that private hospitals are business-oriented entities that aim at generating profit after the provision of health-related services. As a result, private hospitals have invested nothing as there is no profit acquired by them when implementing the family planning data management.

"The family planning services are free in hospitals; therefore, the private hospitals have nothing to gain from this service that is why it has not been given much attention." (*KII-01*)

Discussion

Poor data quality characterized by inaccuracy, inconsistency, and untimely recording and transferring of family planning data jeopardized the data management process. Poor data leads to poor decisions as to the end product of the data management process. The study revealed that the majority of the registers were left incomplete due to technical reasons such as the low knowledge of some nurses they had on filling the register. Also, it was observed that it was difficult to capture some key information related to family planning data. This happened when family planning products were used for treatment purposes while the register was not designed in such a way that it could include the number of products that were used for curative purposes. The problem with poor data quality was reported in Benin as results confirmed poor data quality in three dimensions; completeness, reliability, and accuracy (Ahanhanzo et al., 2015). The similarity of these findings might be because both were done in LMICs where data management is a problem.

The collection of family planning data has not been given much attention in private hospitals. It seems that private hospitals do not realize the importance of these data as they just concentrate on the business part of implementing their health services. To overcome such a situation, the study suggested that there is a need to have specialized nurses in data management, especially HMIS, in private hospitals. Similar findings were presented by (Cheburet & Odhiambo-Otieno, 2016) in Kenya on the presence of an HMIS focal person facilitates data processing, hence improving the quality of data. A sense of data ownership should be introduced to staff working in the family planning department by introducing them to the number of training.

There has been a shortage of staff to implement data management for family planning among private hospitals. Findings reported that staff are sometimes overwhelmed with other tasks, which makes it difficult to record information effectively. Also, the problem of inadequate knowledge of HMIS and skilled HMIS personnel turnover has been suggested to affect the data management process. A study was done suggesting that among the components affecting the data management process, especially in terms of using them for decision-making is having unskilled personnel working with data. This ultimately affects the performance of RHIS (Aqil et al., 2009). Also, (Simba & Mwangu, 2006) suggested that the knowledge and presence of the focal person with skills in HMIS influence the quality of HMIS data. A study done by (Henriksson et al., 2017) suggested that a low level of knowledge was also found to be a factor influencing data management. To tackle this problem, health care workers in the family planning department have to be trained so they can have the proper knowledge and skills to handle the family planning data.

As findings revealed, some staff have never been trained on HMIS. Even those who have been trained have not received adequate training to improve their knowledge and skills. The provision of adequate training is one of the important aspects of the sustainability of family planning data management. It was noted that there has been little attention paid to family planning data management among private hospitals and therefore, human capital investment has not been done at

the required pace, very few nurses are trained and the rest have been doing their data management job using their own experiences (Lorenzi et al., 1997).

Filling in the register is the first starting point of family planning data management. Competent knowledge and skills are required to understand how to make records in the register.

Some nurses also thought to shift from knowing how to use hard copies to electronic data management systems using DHIS2. They are eager to be trained in order to improve their knowledge and skills in using the DHIS2 system for data management. Similar results were found from the study on factors affecting the quality of the Health Management Information System (HMIS) in the Kinondoni district, which found that knowledge of the HMIS concepts was found to be associated with better quality of HMIS data (Simba & Mwangu, 2006). The similarity of these findings might be due to the similarity of the context in which they were conducted.

Conclusion

The study has identified several factors influencing the family planning data management process, which are poor data quality associated with wrong data recorded in the MTUHA book 8, un-entered data, and unavailability of treatment data, inadequate skilled manpower, and poor capacity building.

To ensure the data management process is done with fidelity as indicated in the family planning guidelines, the MTUHA book 8 should be reviewed by the Ministry of Health and other implementing partners to ensure curative pill data are being captured. Also, private hospitals and the Municipal Council should organize training on data management process issues for personnel to ensure proper data management processes to enhance family planning data quality.

Ethical consideration: Ethical approval from the Muhimbili University of Health and Allied Sciences (MUHAS), Research Ethical Committee (REC) was granted for this study (reference number; DA.287/298/01A/). Permission to carry out the study was obtained from the management of the respective hospitals. The purpose of the study was explained to participants and written informed consent was sought before the interview. Privacy and confidentiality were highly considered whereby each interviewee was interviewed alone in the room and no names were required. Participants were informed that their participation was purely voluntary and they had the right to withdraw from the study at any time.

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Authors' Contribution: DG contributed from conception, data collection, data analysis, and manuscript writing. NS contributed to the conception, overseeing the manuscript write-up and editing. SM contributed from conception, data analysis, and manuscript writing.

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