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Perception of health workers on the data management practices useful for providing integrated cardiovascular disease (CVD)-related preventive care services to people living with human immunodeficiency virus (PLHIV) in Khomas Region, Namibia: A qualitative study

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ABSTRACT

Cardiovascular diseases (CVDs) and outdated risk factors are some of the increasing chronic comorbidities for people living with human immunodeficiency virus (PLHIV), leading to poor cardiovascular outcomes. Health systems in Namibia are not responding adequately to this problem by identifying risk factors when screening clients for antiretroviral therapy (ART) initiation. Despite efforts to ensure integration of CVDs data management into existing ART platforms, incomplete disease surveillance and record-keeping remain prominent drawbacks for data managers. Hence the challenge to produce tangible evidence on relationships between human immunodeficiency virus (HIV) and cardiovascular diseases. This study aimed to determine perceptions of healthcare workers regarding data management practices useful in integrated CVD-related preventive care services to PLHIV. A qualitative approach with phenomenological study design incorporating Strauss and Corbin's grounded theory approach was implemented. Thirteen key informants were purposively selected and interviewed. Data was transcribed verbatim, exported to ATLAS.ti and analysed by generating themes, quotes and networks. Five themes related to data management practices regarding CVDs and its risk factors in the context of HIV at targeted health facilities have been identified. They include monitoring exposure to CVDs risk factors; measuring health outcomes of those risks; handling of risk factors data, and how to use data for decision making in response to CVDs among PLHIV.

Introduction

Non-communicable diseases(NCDs), especially cardiovascular diseases(CVDs), and their associated risk factors, have gradually emerged as the main

HIV/AIDS and stroke, especially in developing countries (Behrouz & Gottesman, 2016). The Institute for Health Metrics and Evaluation (IHME) has revealed that Namibia lacks critical data on the leading causes of death, and particularly

Thirteen respondents were interviewed until saturation was reached on the health workers' perception of the current practices of routine tracking of health outcomes of CVDs risk factors among PLHIV. Five health facilities and the National NCD office at the MoHSS headquarters were identified as the study sites to conduct the in-depth interviews.

Data collection Methods: Prior to the interviews the researcher obtained informed consent by allowing respondents to sign a certificate of assent for those who met the inclusion criteria. An interview guide, consisting of one (1) main open-ended question was used to generate qualitative data (Creswell, 2014). Field notes taken during the interviews were supplemented by voice recordings for verbatim transcription. These interviews were done in consultation rooms at the respective health facilities usually during times when patient-flow was limited to the core except for those managing health data at their respective offices.

Data analysis: The researcher followed an inductive approach using ATLAS.ti software version 8.1 to organise text by relevant themes, depict graphic and visual data, along with relevant links and memos (Creswell, 2014). The accuracy of the data was ensured through continuous cross-checking at the data collection points and during content analysis. The process of qualitative data analysis borrowed ideas from DeVellis' theories and applications of scale development(DeVellis, 2012) as summarised and outlined by Creswell(Creswell, 2014).

Results

Demographic characteristics

The respondents were requested to provide information on sex, job category and years of experience prior to the actual interview session. From the thirteen (13) respondents 62% were females whilst 38% were males. A total of 69% were registered nurses whilst 15% were medical doctors and data entry clerks. Most of the respondents had at least 5-10 years of working experience as a healthcare worker shown in Table 1. A summary of the degree of the respondents' views from the interviews on current practices of collection, analysis, reporting and use of data for CVDs risk factors, themes and sub-themes is depicted in Table 2 shows (Maxwell, 2012; Miles, Huberman, & Johnny, 2014).

Various themes and sub-themes were developed, presented and discussed below.

Theme 1: Monitoring exposure of CVDs risk factors among PLHIV

Monitoring of CVDs exposure is operationally defined as measures put in place at health facilities to identify the types of parameters or data pertaining to risk factors of CVDs are captured and recorded using appropriate data collection tools. In evaluating the constraints on monitoring exposure of CVDs and associated risk factors in the Khomas Health district, this research underscores the importance of monitoring each person enrolled or initiated on the ART programme to ensure early screening, detection and treatment against the potential devastating effects of CVDs. The following sub-theme was identified:

Sub-theme 1.1 Lack of concerted surveillance and monitoring efforts to track CVDs risk factors to PLHIV for individual follow-up care

The healthcare workers' understanding of the processes involved in CVDs risk factors data collection, reporting and analysis; the frequency of data reporting, the kind of information obtained, functional health outcomes and data dissemination were deliberated on. The study established that data collection efforts by health workers are appropriate for the examination of the prevalence of health risk factors for CVDs. Majority of the respondents agreed that routine screening which includes parameters such as blood pressure, pulse, respiration, saturation, height, weight status, smoking and alcohol consumption is done on all clients enrolled in the ART programme. However, additional screening tests such as cholesterol and haemoglobin test(HGT) are only done at the doctor's request. Some of the respondents narrated data capturing for cholesterol and haemoglobin as follows:

> *"Cholesterol is only taken when a patient is complaining of heart related problems"(P4)*
>
> *"…fasting blood glucose is done to rule-out any form of diabetes".(P8)*

Although most of the respondents indicated that smoking and alcohol history is routinely collected at their respective health facilities, some of the respondents had a different opinion as quoted below:

> *"Smoking and alcohol usage is not much emphasized unless there is a specific need like someone defaulting from chronic medicine because of alcohol".(P3)*
>
> *"Smoking and alcohol is not done often. We usually ask this question when patient is initiated on ART".(P2)*

Theme 2: Measuring health outcomes of CVDs risk factors among PLHIV

Measuring health outcomes is regarded as the process that is followed at the health facility to ensure that data captured for CVDs and associated risk factors address information needs which in turn will contribute to all-inclusive health interventions for PLHIV. Under this theme, the majority of the respondents agreed that there are no standardised ways of measuring health outcomes. Ideally all parameters taken from PLHIV should be linked to subsequent health interventions for each individual client, which is not always the case. In sub-theme 2.1 some respondents shared their sentiments below:

Sub-theme 2. 1 Lack of consolidated data on CVDs risk factors and progress made in tackling them with tangible health outcomes.

Seven out of nine respondents have indicated that general parameters are collected manually and captured in the patient care booklet, health passports and OPD tally sheets. However, the study revealed that although some data collected for CVDs risk factors is captured and consolidated, it is not appropriately linked to subsequent health interventions for PLHIV. Some respondents indicated that all the parameters taken from the client are recorded in the patient care booklet(PCB). However, all the respondents who are actively involved in patient care at operational level have indicated that parameters such as BMI and those taken during follow-up visits are not entered into the electronic patient monitoring system(ePMS) at their respective health facilities. This is quoted below by two of the respondents:

"BMI data is not captured in a system. We record this data in a normal book".(P2)

"Follow-up parameters are not entered into the database. It is recorded in the patient care booklet and passport".(P9)

Although ePMS is used to record all relevant data regarding a client who is enrolled and initiated on ART, one interviewee indicated that the paper-based system is still being used at their facility as quoted below:

"Data is collected manually and captured in patient health passports and OPD tally sheets, so we don't have electronic systems at this clinic".(P3)

Some healthcare workers also indicated that the current focus has been shifted to IPT, PrEP and TB. This could be one of the factors hindering effective integration of CVDs as one critically scrutinises the following statements below:

"In fact, the focus is not so much on risk factors for cardiovascular diseases."(P11)

"The clinic is usually very busy, so the focus is on IPT, PReP and TB for now."(P3)

"Focus is currently on EPI and not so much on NCDs".(P10)

It was also noted that Quality Improvement (QI) projects initiated by donor agencies have been shelved due to financial constraints.
The third theme on handling or managing CVD risk factor data will be discussed next.

Theme 3: Inconsistent handling or managing of risk factor data for CVDs (electronic and paper-based)

In this theme processes which are followed to ensure that data collected for CVDs and its risk factors are captured in an authentic manner, stored without compromising its security, cleaned, analysed, interpreted systematically, reported to various levels, used for decision making and written feedback is provided on a regular basis were highlighted. The following sub-themes were extracted from the main theme 3.

Sub-theme 3.1 Inconsistent handling and managing of CVDs and associated risk factors.

Although efforts are made to capture data for CVDs risk factors, minimal focus is put on reporting, tracking or linking of CVDs risk factors to PLHIV and subsequent interventions. Furthermore, as indicated in the previous theme, not all the data that is collected and captured on the paper-based system makes its way into ePMS. Findings from this study revealed that data entry clerks are mostly responsible for handling and safeguarding patient records and data. Admittedly, measurements of health outcomes for follow-up consultations are not done routinely as explained below:

"once the client is screened in a consulting room and the nurse cannot manage the condition the client is referred to the Dr, but mostly CVDs are not directly diagnosed by the nurses".(P10)

"in most instances when a clients' blood pressure is high we ask him/her to come for 3 consecutive days for BP check and proper monitoring".(P11)

Generally, respondents agreed that data is compiled, and reports are submitted on a regular basis, but they are not sure how data is handled or managed once it goes from the peripheral levels. This study found that written feedback received through the respective channels of communication is sporadic. According to one respondent, regular feedback is received from the clients visiting their health facility as indicated below:

> *"there is a client's committee that provides constructive feedback in the suggestion boxes".(P2)*

The majority of the respondents who are actively involved in patientcare at operational level indicated that data is interrogated, and review sessions are happening sporadically, but the emphasis is not on CVDs and associated risk factors. On the contrary, to those who have review meetings at their respective facilities, there are some respondents who reported not having those meetings at all. Others reported that the focus of their meetings is not on CVDs and risk factors. This is evident form the following statement:

> *"…but we don't have data review meetings where we discuss cardiovascular diseases or even diabetes and its risk factors".(P8)*
>
> *"We attend the DCC meeting to discuss critical cases such as immunization and serious conditions like hepatitis and cholera".(P5)*
>
> *"…no, we usually don't discuss cardiovascular diseases".(P5)*

However, a minority of the respondents indicated that data review sessions are not taking place or that they have never attended any data review session.

> *"we don't do data reviews".(P3)*
>
> *"No, I have never attended a data review session".(P6)*

Sub-theme 3.2 Lack of standardised links between information provided on CVDs risk factors by health workers and subsequent health interventions

Data captured on BMI, smoking and alcohol usage are generally recorded but not used to determine further interventions unless the client is malnourished or has a history of TB. It is further revealed that obese clients are not monitored regardless of the outcome of their BMI and MUAC. In the words of two of the respondents:

> *"We don't monitor clients who are obese although the parameters are taken".(P2)*
>
> *"…we will probably tell the client your BP is high or sometimes to look at the diet…but honestly speaking there is no standardised way of doing it".(P11)*

Another respondent confirmed that even though basic vital signs are captured, the lack of standardised practices contributes to data not being analysed, systematically interpreted, reported to various levels or used for decision making. The following statement made by one of the respondents serves as evidence:

"Vital signs are always done but you know we don't do it to monitor cardiovascular diseases. That's why I think these things should be standardised".(P11)

Despite the limitations, the existing data collection systems, are powerful tools for surveillance and monitoring of CVDs. Data on utilisation of CVD data for decision making will be discussed next.

Theme 4: Utilisation of CVD data for decision making

Data utilisation is regarded as the use of data captured from PLHIV to inform programme decision making and provided regular feedback to ensure that the right data is captured, from the right target group and for the right purpose. Responses for this theme are discussed below.

Generally, client health data is available, but focus is not on data for CVDs risk factors or specifically cardiovascular diseases. The study has revealed that there is currently no documented harmonised system that encourages the utilisation of CVDs data and its risk factors to encourage a holistic care of PLHIV. Some respondents reported that there is no written feedback.

One health facility was used as a best practice of integrating hypertension into ART services, of which the interviewee participated in an article writing exercise. Information needs are not prioritised and often lacking because critical data is not analysed for further decision making. It was further revealed that data for BP, BMI, smoking and alcohol history is only used when the patient's viral load is high. The expressions below emphasis the need for analysing and use of data which is captured routinely.

"As a health worker I will always talk to the clients about healthy living, but these are definitely not recorded anywhere".(P11)

"No system is focusing on alcohol usage and subsequent interventions".(P2)

Theme 5: Health system response and capacity to manage CVDs among PLHIV

Health systems' response is well defined, and the capacity of the current system is prepared, resilient and well established to provide integrated services and capability to address the burden of cardiovascular diseases at facility level. Reponses for this theme are summarised in figure 2.

The respondents have indicated that all reported data is entered by the HIS and surveillance officers at district level into DHIS2. It is further revealed that data entry clerks and nurses are mainly responsible for CVDs risk factor data collection, analysis and reporting. They also expressed staff shortage as a concern that limits effective service delivery. Some respondents have expressed the following:

"The doctor will initiate the first BP treatment since we as nurses are not mandated to do that, but follow-up treatment is dispensed at the clinics".(P11)

"We have too many patients with few nurses who are doing the work. More nurses should be employed".(P11)

In addition, the study has revealed that there are currently many vertical programs with minimum interoperability, despite minimal efforts of harmonising various health projects. A classical example is the BP screening and treatment that was monitored for one year under the NAMPROPA pilot project whilst the NAMLIFE project focussed on viral load monitoring and suppression, IPT initiation, and those newly diagnosed with HIV.

Discussion

Monitoring of risk factors related to CVDs among PLHIV are critical in ensuring continuum of care at all levels of health service delivery. The current study revealed that fragmented surveillance and monitoring hampers the provision of integrated health service delivery to PLHIV. Several studies confirmed that HIV-infected patients commencing antiretroviral treatment may require regular hypertension screening and other cardiovascular risk assessments(Magodoro, Esterhuizen, & Chivese, 2016; Mphatswe et al., 2012) such as cholesterol tests, hyperlipidaemia, and lifestyle assessments. Furthermore, this study found that screening tests for hypercholesterolemia, hyperlipidaemia and blood glucose are not routinely done. Notwithstanding, it has been suggested by Knudsen et al., that early detection of CVD risks reduces the chances of subclinical coronary atherosclerosis(Kristoffersen et al., 2009).

In terms of measuring health outcomes of CVDs risk factors among PLHIV, it is evident that parameters captured from a patient expedite the processes of integration, prompt referral and targeted follow-up of those patients who are at risk of CVDs.

Missed opportunities in terms of losing PLHIV due to systemic errors cannot not be underestimated. Therefore, refining data management processes for integrating the tracking of patients who are lost to follow-up or who have exited the system through death is advocated for by several researchers(Iskarpatyoti, Agala, & Mejia, 2019; Mphatswe et al., 2012; Patel et al., 2018). This view is reiterated by Rice et al, who argues that PLHIV.

tracking over time and space creates a workable platform for targeted patient tracing across various health programs(Rice et al., 2018).

Improper management of data is prone to numerous data quality issues experienced at health facilities. Findings under this theme concur with the assessment conducted by Measure Evaluation on data use barriers in the DRC(Rice et al., 2018). Lack of regular data quality checks and audits; centralised data management and analysis tasks; lack of emphasis on the review of data for M&E purposes or programme decision-making and limited or irregular dissemination of information (Brodsky I, 2017; Nengomasha, Abankwah, Uutoni, & Pazvakawambwa, 2018; Nutley, Reynolds, Nutley, & Reynolds, 2017) were among the key findings of various assessments done by Measure Evaluation. Similarly, lack of a data use culture, human resources challenges, and lack of supervision and coordination (MEASURE Evaluation, 2018) were among the issues identified in the Côte d'Ivoire HIS Investment study. The researcher is of the opinion that bi-directional feedback establishes strong relationships between beneficiaries of the health services, data managers and champions of strategic information at all levels of reporting.

On data utilisation, all targeted health facilities generate data summaries which is submitted to the

PHC supervisor by the 5th of every month. However, using reliable data for decision making is compromised due to the lack of interoperable systems. Studies conducted in Zimbabwe(Xiao et al., 2017), Malawi(Makombe et al., 2008) and South Africa(Mphatswe et al., 2012)revealed that inaccuracy and incompleteness of data hampers prompt decision making.

Lastly, although risk factors for the development of CVDs were regularly collected by health workers, it is evident that there is no single nationwide surveillance system to consolidate current efforts. This finding is supported by the study conducted by MACRO international(DeVellis, 2012) which alludes to the absence of a single nationwide surveillance system despite regulated surveys, registries and vital statistics that are used to complement the capturing of different kinds of information about chronic diseases. Similarly, to date no comprehensive surveillance has been done on the existence of CVDs risk factors in Namibia. In addition, despite current efforts, little is known about surveillance systems that can provide reliable estimates of disease prevalence at each level of health care delivery(Patel et al., 2018) in Namibia.

In conclusion, data quality management remains a priority for any health care service delivery. Respondents identified a range of issues that are currently hindering effective monitoring and evaluation. The findings from the study revealed that data collection efforts to determine the prevalence of health risk factors for CVDs are routinely done for all clients enrolled in the ART programme. Furthermore, the study revealed that the existing guidelines on the management of NCDs are not institutionalised and are outdated to address current issues of CVDs among PLHIV. As a result, data management processes are fragmented and inconsistent across various health facilities in the Khomas health district.

Implications for Practice

The perceptions of healthcare workers are a critical indicator for

- enhancing the routine tracking of health outcomes of cardiovascular diseases risk factors amongst people living with HIV
- provision of integrated healthcare services to PLHIV, leading to better health outcomes
- institutionalising integrated CVDs care to PLHIV at all levels of health service delivery.

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