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Burnout and associated factors among healthcare workers in acute care settings at a tertiary teaching hospital in Tanzania: An analytical cross-sectional study

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Abstract

Background and Aims: Healthcare worker burnout has been linked to increased patient safety risk, low work professionalism, and low satisfaction with the care encounter. This study aimed to find the prevalence and factors associated with burnout among healthcare workers in acute care settings at a national referral hospital in Tanzania.

Methods: An analytical cross-sectional study was performed at a national referral hospital in Tanzania. Healthcare workers at the departments of Emergency Medicine, Intensive Care Unit, and Anesthesia at Muhimbili National Hospital were recruited from January 2021 to March 2021. A two-part questionnaire adopted from the Maslach Burnout Inventory (MBI) and MBI-Human Services Survey tool were administered to measure burnout. Categorical variables were summarized using frequencies and percentages, and variables were compared using logistic regression.

Results: A total of 174 healthcare workers were issued questionnaires to participate in the study. With a response rate of 78%, 135 healthcare workers were included in the study, 43.7% were from the intensive care unit; the majority were female (63.7%), and assistant nursing officers (42%). The prevalence of burnout among participants was 62%, with 90.4% of participants showing a high level of emotional exhaustion. A longer duration of a single-day shift was associated with increased burnout among work-related factors ($p < 0.001$). Fewer night-time sleeping hours, tobacco use, and lack of regular exercise were significantly associated with increased burnout among social-related factors ($p < 0.001$).

Conclusion: The study showed an alarmingly high prevalence of burnout among healthcare workers in the acute care setting of Muhimbili National Hospital. Personal well-being and participation in wellness programs have been associated with a reduced prevalence of burnout. The hospital should address the issue of burnout among its healthcare workers. This also calls for immediate action, necessitating further studies at the regional and national levels to ascertain the burden and causes of burnout in this setting.

KEYWORDS

acute care setting, burnout, healthcare workers, Tanzania

1 | INTRODUCTION

Herbert Freudenberger initially described burnout in 1974, as a state of both mental and physical exhaustion caused by one's professional life; making one feel exhausted, listless, and unable to cope.[1] Although burnout has been a global challenge since the 1970s, it is only recently that it has become increasingly recognized, with most research and measures taken on raising awareness and intervening in the situation.

In its 11th Revision of the International Classification of Diseases (ICD-11), the World Health Organization (WHO) included burnout as an occupational phenomenon rather than a medical condition, with a clearer definition than in previous editions. The WHO defines burnout as a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed,[2] characterized by three dimensions or symptoms of emotional exhaustion, depersonalization, and reduced professional efficacy.

Studies conducted on the prevalence of burnout among healthcare workers in Africa have shown varying prevalence, ranging from 51% to 94%.[3,4] In sub-Saharan Africa, burnout was associated with unfavorable work conditions, high job demands, low job satisfaction, poor wages, interpersonal conflicts, time pressure/workloads, nurses, younger age, and those with less support or resources to manage workloads.[3,5] The prevalence in developed countries is lower than that found in Africa, ranging between 42% and 55%.[6–8] Some of these factors include inadequate staffing numbers, poor wages, lack of continuing educational opportunities, and poor job satisfaction.[3] This has been attributed to the difference in the two settings, with Africa having a higher patient-to-healthcare worker ratio, so healthcare workers are overwhelmed with workloads and poor working environments.[5]

Several demographic factors have been cited to be associated with an increased risk of burnout among healthcare workers. These include age, gender, marital status, and duration of working hours.[9] Although in most studies, the female gender has been linked with an increased risk of burnout, especially in America and in the Middle East,[8,10] a European study reported that the male gender is associated with an increased risk of burnout among healthcare workers.[7]

Increasingly, physician burnout has been recognized as a public health crisis in many high-income countries because it not only affects physicians' personal lives and work satisfaction but also creates a severe burden on the whole healthcare system, in particular threatening patients' care and safety.[11,12]

Although workplace ethics and culture vary among different countries, there is a scarcity of data on healthcare worker burnout in low-income and middle-income countries (LMIC), and most of the studies with adequate quality have only been conducted in high-income countries.[13] This also proves to be an obstacle for effective interventions to reduce healthcare worker burnout since burnout is still disturbingly a hidden but rapidly growing epidemic in LMIC.

This study aimed to identify the prevalence and factors associated with burnout among healthcare workers in acute care settings at a tertiary teaching hospital in Dar es Salaam, Tanzania.

2 | METHODS

2.1 | Study design and setting

An analytical cross-sectional study was conducted from January 2021 to March 2021 at Muhimbili National Hospital (MNH), which is a national referral hospital, research center, and university teaching hospital with a bed capacity of 1500. It has 2500 employees, of which 300 are doctors and specialists, 900 are registered nurses, and the rest are nonmedical employees. The three acute care settings at MNH that were selected for this study were the Emergency Medicine Department (EMD), Intensive Care Unit (ICU), and Anesthesia Department. The EMD has a main unit with triage, treatment, and resuscitation areas, a mass causality area, and an emergency operating theater. The main unit has 50 nurses, five registrars, and seven emergency medicine specialists. The anesthesia department has 50 personnel, with eight anesthesiologists, four registrars, and 40 nurse anesthetists. MNH has four ICU wards, including pediatric, maternity, surgical, and medical ICUs, each with an average of 20 registered nurses and two registrars.

The study was reviewed and approved by the Muhimbili University of Health and Allied Sciences (MUHAS) Research and Publication Committee (Ref. No MUHAS-REC-6-2020-290) and the Muhimbili National Hospital; Teaching, Research and Consultancy Unit (Ref. No MNH/TRCU/Perm/2020/108). Written informed consent was obtained from all participants before the study. Confidentiality was observed, and all data were stored unlinked to participant identifiers.

2.2 | Definitions

Burnout: Feelings of energy depletion or exhaustion; increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and reduced professional efficacy.

Acute care setting: A place where a patient receives active but short-term treatment for a severe injury or episode of illness, an urgent medical condition, or during recovery from surgery.

Healthcare workers: One who delivers care and services to the sick and ailing directly as doctors and nurses.

2.3 | Study variables and analysis

The study inclusion criteria involved all healthcare workers who were employed at the mentioned acute care settings for over 6 months. New recruits in respective departments who had less than 6 months of employment, as well as interns and students rotating in selected departments were all excluded from the study.

The sample size was obtained through the formula for a finite population; for 95% confidence interval with a margin of error of 0.005 and a population of 200 healthcare providers in the studied department. The minimum sample size required for the study was 130 healthcare workers. Convenience sampling was used to recruit

the participants in their respective departments. To have a maximum representation and to increase the response rate, all healthcare workers who met the inclusion criteria were recruited in this study, with a total of 174 questionnaires issued.

The healthcare workers were informed of the study at the start of the day. Once consent was taken by the principal investigator, the questionnaires were distributed for them to self-administer and returned anonymously to a special collection box at the nursing station in each studied department or handed over to the principal investigator.

A two-part questionnaire adopted from the Maslach Burnout Inventory (MBI) was administered to diagnose burnout. The MBI questionnaire has been tested and validated in an African setting, which was deemed reliable in this setting, even among healthcare workers.[5] The MBI questionnaire is recognized as the leading measure of burnout as it has been used in 88% of burnout research publications and validated by more than 35 years of extensive research. The first part of the questionnaire was used to assess the associated risk factors for burnout among healthcare workers in the acute care setting. This part included demographic data (age, gender, marital status, and number of children) and work-related questions (place of work, number of night calls/shifts per week/month, shift hours, and years at work). The second part was the MBI–Human Services Survey (MBI–HSS) tool, designed to measure feelings of burnout among individuals working in human services jobs. The MBI–HSS questionnaire produces scores on three subscales: emotional exhaustion (scores range from 0 to 54), depersonalization (scores range from 0 to 30), and low personal accomplishment (scores range from 0 to 48). For this study, the diagnosis of burnout was defined as the presence of all three symptoms of burnout: a high score (27 or over) in emotional exhaustion, a high score in depersonalization (13 or over), and a low score in personal accomplishment (0–31). The reliability co-efficient of MBI-HSS is between 0.73 and 0.83,[14] and 0.86 among Nigerian healthcare workers,[15] which are both satisfactory.

Burnout was modeled as a binary variable using the conventional and predetermined limits defined previously. Thus, each participant was assigned to one of the two reciprocally exclusive and exhaustive groups of the burnout state. The data were collected, cleaned, and entered into the Statistical Package for Social Science (SPSS) v26 (IBM; https://www.ibm.com/analytics/spss-statistics-software). Categorical variables were summarized using frequencies and percentages. Variables were compared using logistic regression models to estimate the effect size of the risk factors by calculating odds ratios with 95% confidence intervals. Multivariate regression was performed on the significant association with burnout diagnosis.

3 | RESULTS

A total of 174 questionnaires were distributed in the departments in which the study was conducted. The response rate of the completed questionnaires that were returned and used for analysis in this study was 135 (78%), as displayed in Table 1.

3.1 | Prevalence of burnout

Among the 135 healthcare workers, 84 (62%) participants met the criteria for a diagnosis of burnout (Figure 1). Among the symptoms of burnout, most participants had high emotion exhaustion 122 (90.4%), followed by a high level of depersonalization 88 (65.2%), while none of the participants had low levels of emotional exhaustion and none had higher levels of personal accomplishment (Figure 2).

3.2 | Factors associated with burnout

The study showed that working in an ICU increases the odds of burnout but with no statistical significance. Gender, age, and marital status had no statistically significant relationship to the diagnosis of burnout (Table 2). Those working shifts that were longer than 12 h were 10 times more likely to have burnout compared with participants who had 8–12 h per shift (95% CI 1.39–85.00). Those who worked more than two-night shifts per week were statistically more likely to experience burnout. Those without a good working relationship with co-workers had five times greater odds of burnout compared to those with a good relationship with co-workers. Factors such as remuneration, workplace autonomy, and years as a healthcare worker had no statistically significant association with burnout (Table 3).

Table 4 shows that having more sleep hours at night and performing regular physical exercise reduced the odds of burnout statistically significantly. Those who were smoking tobacco had greater odds of burnout compared with those who were not smoking (OR 4.9, 95% CI 1.10–22.54). Other family and social-related factors had no statistically significant difference.

Table 5 represents a multivariate analysis of all factors that had a significant association with burnout diagnosis in the univariate model. The duration of a single-day shift, regular practice of physical exercise, using tobacco, and sleeping hours at night were all found to have a statistically significant association with the diagnosis of burnout among healthcare workers in acute care settings.

4 | DISCUSSION

Compared to the rest of the world, sub-Saharan Africa has the largest burden of disease with the least resources and, therefore, incapable of handling this overwhelming burden. A goal in reversing this trend is to have a well-trained and motivated healthcare workforce. Burnout is an indicator of an overwhelmed and demotivated workforce, leading to medical errors, decreased patient safety, and absenteeism. These factors are detrimental to the goal of reversing Africa's healthcare problems as envisioned in sustainable development goal number.[3]

This study found the prevalence of burnout among healthcare workers in acute care settings at a tertiary teaching hospital in Tanzania to be 62%, with the presence of all three symptoms of

TABLE 1 Demographic characteristics of healthcare workers in the acute care setting (n = 135).

Variable	Frequency (n)	Percent (%)
Area of work		
Anesthesia	35	25.9
EMD	41	30.4
ICU	59	43.7
Gender		
Male	49	36.3
Female	86	63.7
Age		
≤ 30	33	24.4
31–40	66	48.9
41–50	26	19.3
≥ 51	10	7.4
Designation		
Resident	7	5.2
Specialist	8	5.9
Nursing officer	43	31.9
Assistant Nursing Officer	56	41.5
Other	5	3.7
Registrar	16	11.9

Abbreviations: EMD, Emergency Medicine Department; ICU, intensive care unit.

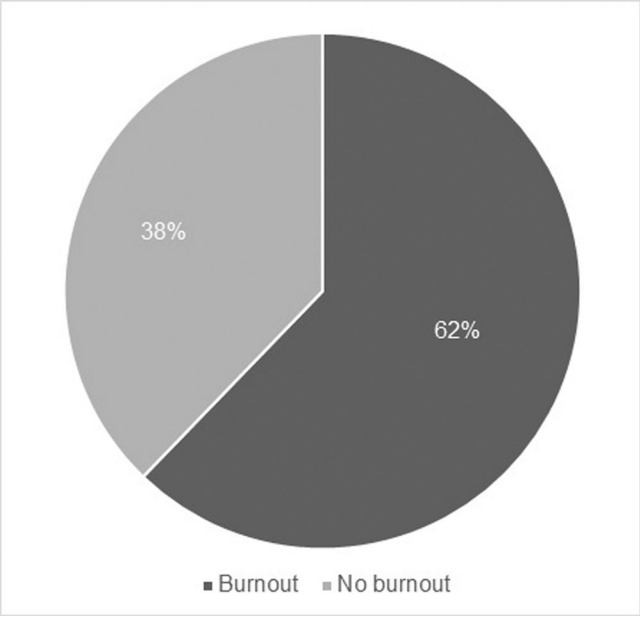

FIGURE 1 Prevalence of burnout among healthcare workers in the acute care setting.

burnout being used as the criteria for burnout diagnosis. The study had a higher burnout prevalence than other studies done in developed countries and has shown a lower prevalence of burnout among healthcare workers ranging between 42%–55%.[6–8] There are multiple reasons for the huge gap in burnout prevalence between developing and developed countries, including workforce shortage, emigration of the workforce, unsupportive environment, and long hour shifts with insufficient supplies and little pay.[3]

This study showed a lower prevalence of burnout in contrast to other studies conducted in sub-Saharan Africa. A study conducted in South Africa found a prevalence of burnout of 81%. However, only one subscale of the MBI was used to diagnose burnout, and it had only 37 participants recruited from multiple centers.[16] In East Africa, a study from a tertiary hospital in Kenya, similar to our study, found that the prevalence of burnout was 94% among healthcare workers.[4] However, this study used the Compassion Fatigue Self-Test (CFST) tool to diagnose burnout and recruited healthcare workers from the departments in the hospital rather than from the acute care settings. Different tools may present different prevalences of burnout in different regions. However, the result remains the same such that it is higher in sub–Saharan Africa.

Among the symptoms of burnout, a high level of emotional exhaustion was the most prevalent symptom (subscale). Consequently, as in other studies, only one symptom of burnout was used for meeting the criteria for the diagnosis of burnout. Dominant high emotional exhaustion among participants in this study was similar to most of the studies done worldwide on burnout among healthcare workers, which have found higher levels of emotional exhaustion to be more pronounced when MBI was used,[6,16] with several studies conducted in sub-Saharan Africa showing it as the most prevalent of the three subscales by 66%.[3] This demonstrates that healthcare workers are more prone to emotional exhaustion, possibly due to the nature of their work. An example can be observed among nurses as the complexity of working conditions as seen in subspecialty practice, may also influence burnout levels. Working in the emergency department may lead to substantial anxiety, while working in the pediatric and oncology department is reported having moderate to high levels of emotional exhaustion and depersonalization.[3]

Although only 16 (12%) participants reported working more than 12 h per shift, the duration of a single day shift was significantly associated with burnout among healthcare workers in an acute care setting. This was associated with a tenfold increase in the likelihood of burnout ($p < 0.001$). This is similar to other studies that have shown that long working hours and more night shifts significantly increase the risk of burnout.[17,18] This may depend on the work organization as daytime healthcare workers carry out procedures, while during nighttime, there is minimal work in order not to disturb patients, thus overloading work during the daytime.[19]

Alcohol and tobacco use have both been associated with burnout in different pathways, some linking substance abuse as a coping mechanism to burnout.[20] This study found a significant association

FIGURE 2 Frequency of burnout symptoms among healthcare workers in the acute care setting.

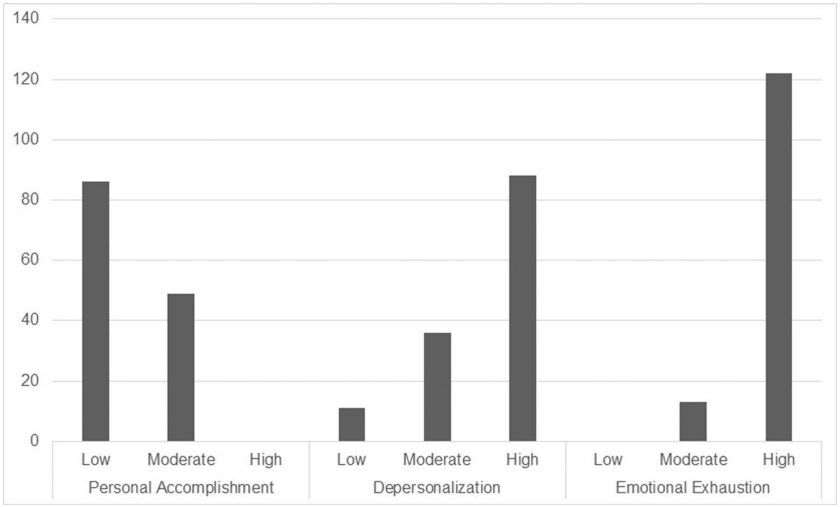

TABLE 2 Factors associated with burnout among healthcare workers in the acute care setting ($n = 135$).

Variable	Burnout state		
	Burnout (%)	No burnout (%)	OR (CI 95%)
Area of work			
Anesthesia	20 (57.1)	15 (42.9)	1
EMD	27 (65.8)	14 (34.2)	1.44 (0.57–3.67)
ICU	37 (62.7)	22 (37.3)	1.85 (0.54–2.96)
Gender			
Male	33 (67.3)	16 (32.7)	1.42 (0.67–2.96)
Female	51 (59.3)	35 (40.7)	1
Age			
≤ 30	21 (63.6)	12 (36.4)	1
31–40	44 (66.7)	22 (42.3)	1.14 (0.48–2.74)
41–50	15 (57.7)	11 (42.3)	0.77 (0.27–2.23)
≥ 51	4 (40.0)	6 (60.0)	0.38 (0.08–1.62)
Marital status			
Single	31 (64.6)	17 (35.4)	1
Married	51 (62.2)	31 (37.8)	0.9 (0.43–1.90)
Divorced	2 (66.7)	1 (33.3)	1.09 (0.09–12.99)
Widow	0 (0.0)	2 (100.0)	

Abbreviations: CI, confidence interval; EMD, Emergency Medicine Department; ICU, intensive care unit; OR, odds ratio.

TABLE 3 Factors associated with burnout among healthcare workers in the acute care setting ($n = 135$).

Variable	Burnout diagnosis		
	Burnout (%)	No burnout (%)	OR (CI 95%)
Duration of single day shift			
8–12 h	69 (57.9)	50 (42.1)	1
> 12 h	15 (93.7)	1 (6.3)	10.87 (1.39–85.00)
Night shifts per week			
0	1 (20.0)	4 (80.0)	1
2	36 (49.3)	37 (50.7)	3.99 (0.41–36.51)
3	46 (82.1)	10 (17.9)	18.4 (1.85–18.27)
4	1 (100.0)	0 (0.0)	
Remuneration			
Adequate	12 (100.0)	0 (0.0)	
Inadequate	72 (58.5)	51 (41.4)	
Workplace autonomy			
Yes	72 (65.4)	38 (34.6)	2.05 (0.85–4.93)
No	12 (48.0)	13 (52.0)	1
Good relationship with co-workers			
Yes	81 (65.8)	42 (34.2)	1
No	3 (25.0)	9 (75.0)	5.79 (1.49–22.51)
Years of working in the healthcare profession			
0–5 years	26 (63.4)	15 (36.6)	1
6–10 years	34 (60.7)	22 (39.3)	0.89 (0.39–2.05)
11–20 years	22 (62.9)	13 (37.1)	0.97 (0.38–2.48)
20+ years	2 (66.7)	1 (33.3)	1.15 (0.09–1.15)

Abbreviations: CI, confidence interval; OR, odds ratio.

between tobacco use and increased odds of having burnout when other factors were controlled for. This was similar to other studies that had found substance abuse to have an association with an increased risk of burnout among healthcare workers.[7,9,19] Alcohol and tobacco use can be a form of behavioral manifestation to manage the stress of work, as well as the pursuit of pleasure from their busy work activities due to poor working conditions. This may lead healthcare workers to resort to substance abuse, used as a relaxant or anxiolytic.[19]

The lack of regular physical exercise was found to have a significant association with an increased risk of burnout, as those with regular exercise were 45% less likely to have burnout ($p < 0.001$). This is similar to other studies that showed a lack of

TABLE 4 Factors associated with burnout among healthcare workers in the acute care setting ($n = 135$).

Variable	Burnout diagnosis		OR (CI 95%)
	Burnout (%)	No burnout (%)	
Physical exercise			
Yes	19 (48.7)	20 (51.3)	0.45 (0.21–0.97)
No	65 (67.7)	31 (32.3)	1
Tobacco			
Yes	14 (87.5)	2 (12.5)	4.9 (1.10–22.54)
No	70 (58.8)	49 (41.2)	1
Alcohol			
Yes	55 (58.5)	39 (41.5)	0.58 (0.26–1.28)
No	29 (70.7)	12 (29.3)	1
Chronic disease			
Yes	24 (50.0)	24 (50.0)	1
No	60 (68.9)	27 (31.1)	2.22 (1.08–4.59)
Sleeping hours at night			
≤4 h	25 (92.6)	2 (7.4)	1
5 h	31 (70.7)	12 (29.3)	0.19 (0.03–0.94)
6 h	25 (49.0)	26 (51.0)	0.07 (0.02–0.36)
>6 h	3 (21.4)	11 (78.6)	0.02 (0.03–0.15)

Abbreviations: CI, confidence interval; OR, odds ratio.

TABLE 5 Multivariate regression of factors with significant association on the univariate model.

Variable	Standardized coeff. β	p-value	95% CI for B
Duration of single day shift	0.367	<0.001	0.36–0.74
Physical exercise	0.579	<0.001	0.44–0.75
Number of night shifts per week	0.140	0.065	−0.02 to 0.22
Sleeping hours at night	−0.955	<0.001	−0.59 to −0.42
Chronic disease	0.238	0.076	−0.11 to 0.61
Tobacco	−0.282	0.001	−0.67 to −0.18
Good relationship with co-workers	0.157	0.099	−0.02 to 0.18

Note: The dependent variable is the burnout diagnosis, $R^2 = 0.609$, Adjusted $R^2 = 0.587$.

physical exercise to be a strong determinant of burnout among healthcare workers,[21] with some authors advocating regular physical activity as an effective means to reduce burnout among healthcare workers.[22]

Lack of adequate sleep, particularly during the night time, has had a strong association with burnout worldwide.[23] In this study, the participants who slept more hours at night had lower odds of having burnout compared with those who slept for less than 4 h per night ($p < 0.001$). Although sleep deprivation has been debated by most authors, whether it is the effect or cause of burnout.[24,25]

Factors such as gender, age, and marital status have significance in burnout in other studies. However, they had no statistically significant relationship with the diagnosis of burnout in this study. Other studies have mentioned that women, healthcare workers of younger age, and marital/family conflicts are more prone to burnout.[5]

4.1 | Limitations

These studies used more than one subscale of burnout for the diagnosis of burnout as in this study. However, all the studies were multicentered and recruited healthcare workers from different facilities and multiple specialties. A limitation of this study is the sample size. Although it was adequate for this analysis, it is insufficient to allow for a more detailed analysis of differences in workplace and burnout across different hospitals' departments. The study also occurred during the pandemic, which may have also influenced burnout though it was not assessed, and similarly with pre-existing psychological factors.

5 | CONCLUSION

This study found the prevalence of burnout among healthcare workers to be alarmingly high at 62%. Work-related factors, such as working more than 12 h per shift, and social factors that included a lack of regular practice of physical exercise, fewer sleeping hours at night, and use of tobacco, were significantly associated with increased burnout among healthcare workers in acute care settings at a tertiary teaching hospital in Tanzania. Personal well-being and participation in wellness programs have been associated with a reduced prevalence of burnout. The hospital should address the issue of burnout among its healthcare workers, especially the factors that have identified burnout. Increasing the number of personnel may help reduce working hours, and possibly help the healthcare workers get more time off for physical exercise and more sleep. However, more studies should be conducted in the field of healthcare worker burnout and well-being, across other hospitals and departments, as this will help identify the causes and develop better interventions for our setting.

AUTHOR CONTRIBUTIONS

Alex F. Lwiza: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; resources; validation; visualization; writing—original draft; writing—review & editing. **Edwin R. Lugazia**: Conceptualization; project administration; supervision; validation; visualization; writing—review & editing.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest in preparing this article

DATA AVAILABILITY STATEMENT

No additional data sets are available.

ETHICS STATEMENT

The study was reviewed and approved by the Muhimbili University of Health and Allied Sciences (MUHAS) Research and Publication Committee (Ref. No MUHAS-REC-6-2020-290) and the Muhimbili National Hospital; Teaching, Research and Consultancy Unit (Ref. No MNH/TRCU/Perm/2020/108). All authors have read and approved the final version of the Alex Lwiza had full access to all the data in this study and take complete responsibility for the integrity of the data and the accuracy of the data analysis.

TRANSPARENCY STATEMENT

The lead author Alex F. Lwiza affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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