Pacific International Journal
ISSN 2616-4825 [Online] 2663-8991 [Print]
Vol. 03 No.02
http://pacificinternationaljournal.com/

BEDSIDERS WELFARE AT NDOLA TEACHING HOSPITAL: A CROSS-SECTIONAL STUDY

Imukusi Mutanekelwa[1] Mutale Chileshe[2]

[1,2] Copperbelt University

ARTICLE INFO

Article history:
Submission date: 05 May 2020; 1st Revision 19 May 2020;
2nd Revision: 13 June 2020;
Accepted: 16 June 2020;
Pages: 114-118

ABSTRACT

Introduction
Bedsiders welfare is a neglected issue in the Zambian health system therefore, they are at risk of facing untold challenges as they care for the patient. With the current shortage of healthcare staff in hospitals, it implies that the clinicians may not be able to meet all aspects of the holistic health care approach i.e. social, mental or physical aspects of health and that's where the bedsider comes in. Bedsiders are arbitrarily defined as the informal caregivers including family, relatives or friends for an in-patient of any hospital duration.

Objective
This study evaluated bedsiders welfare as influenced by social determinants of health at Ndola Teaching Hospital.

Methods
A cross-sectional study was conducted at a tertiary hospital in Ndola, Zambia and used a multistage random sample of 199/228 participants, a validated structured questionnaire, employed non-parametric tests.

Primary outcome
This study measured the effect of bedsiders length of stay leading to health inequities as measured by social determinants of health.

Results
Descriptive statistics showed gender disparity as three-quarters were female bedsiders. Inferential analysis showed that the duration of the bedsiders stay in hospital spent caring for the patient was associated with satisfaction levels (p 0.034), economic factors (0.030), employment status (p 0.027), and psychosocial status (p 0.013).

Conclusion
Economic factors (i.e. Inadequate finances) was the most critical factor reported which had the potential to drive families into poverty and financial catastrophe hence affecting the realisation of the universal healthcare approach in Zambia. A follow-up study should be conducted to assess bedsiders welfare after the operationalisation of the National Health Insurance Scheme in February 2020.

Keywords: Welfare; Adult; Bedsider; Informal caregiver; Hospital; Zambia

INTRODUCTION

According to the Zambia National Health Strategic Plan 2017 – 2021, there is a massive healthcare staff shortage of 32% (i.e. 20,427) with the doctor-patient ratio being as low as one doctor per 17,589 instead of the World Health Organisation (WHO) recommendation of one doctor per 5000 (GRZ/MOH, 2016). The current shortage of healthcare staff in hospitals implies that the clinicians may not be able to meet all aspects of the holistic health care approach, i.e. social, mental or physical aspects of health and that's where the bedsider comes in. The presence of bedsiders in hospitals has been shown to improve the in-patient's well-being yet they are neglected in the Zambian health setting. Hospital settings are mostly patient-centred, and this critical approach has been greatly researched in the form of clinician-patient relationship, while the subject of bedsiders welfare, on the other hand, is quite a neglected issue. The bedsiders welfare is affected by multifactorial factors (termed as social determinants of health) which include bedsiders personal characteristics, psychosocial, economic, physical and spiritual factors. Bedsiders are arbitrarily

defined as the informal caregivers including family, relatives or friends for an in-patient of any hospital duration. In comparison to formal caregivers such as medical practitioners, bedsiders provide care free of charge (Li and Song, 2019).

It has been shown that certain behavioural activities done by bedsiders improve the patient's health. These activities include encouraging the patient, upholding patient correspondence with family and friends, psychological and emotional support, taking part in the planning the patients care, patient representation and informing the patient on matters affecting him, participating in the provision of care such as feeding, hygiene, help during medical examinations (Bellou and Gerogianni, 2007). Three needs of the family were identified and comprised of knowledge, emotional needs and personal needs. Concerning the needs of knowledge, it was observed that many families had insufficient knowledge to effectively contribute to their patient's care, information such as prognosis, daily disease progress, environment where the patient is hospitalised, diagnostics and therapeutic program, and nursing care program. Emotional needs included the desire to be near a patient during hospitalisation, hoping for patient recovery, being able to express their feelings to medical staff and their concerns about the patient being addressed. The personal needs of a family were of the smallest interest and centred on facilities that should be used in a hospital (Bellou and Gerogianni, 2007).

However, challenges faced by bedsiders may cause stress, anxiety, anger or frustrations and has sometimes resulted in inappropriate behavior, especially violence. At times undressed challenges may lead to physical violence against healthcare workers which has a worldwide prevalence between 8-38% (WHO, 2020). Some common causes of violence include infringement of visiting hours, prolonged waiting time, psychological problems such as anger and anxiety and prohibition of smoking, the patient denied admission to the hospital, delays in providing care (Koukia et al., 2013). In turn, violent behaviour towards nurses has been shown to stress them and reduce their productivity thus compromising the patient care and ultimately the health outcome (Gates, Gillespie and Succop, 2011). Furthermore, the unidentified or unmanaged stress from various bedsiders challenges is a potential risk factor to developing non-communicable diseases (NCD's) which has continued to increase in Zambia from 23% deaths in 2014 to 29% deaths in 2018 (WHO, 2018).

In the public sector, a few challenges that are faced by patients and bedsiders are handled on a case by case basis by the NTH social welfare department and the Public Welfare Assistance Scheme under the Ministry of Community Development Mother and Child Health which aims to carter for 10% of the vulnerable population such as the disabled, aged, chronically ill, victims of minor disasters, child or female-headed households (GRZ, 2015). Such limited assistance could be due to limited resources, especially finances and personnel.

The study aimed at understanding bedsiders welfare at Ndola Teaching Hospital (NTH) and identified factors causing health inequities of bedsiders as they cared for their in-patients in hospitals. This was achieved by focusing on the social determinants of health (physical, economic, spiritual, psychosocial factors, or personal characteristics) experienced by bedsiders at Ndola Teaching Hospital (NTH). The information is a surrogate indicator of bedsiders potential to develop stress which can lead to non-communicable diseases (NCD's). Ultimately, the information from this research will inform policymakers implementing Zambia's Ministry of Health legacy goal number 9 "to halt and reduce

NCD's" and (universal health coverage) programs to reduce overall identified bedsiders challenges.

MATERIALS AND METHODS

A **cross-sectional study** was conducted at Ndola Teaching Hospital (NTH), an urban tertiary hospital located in Ndola district of Copperbelt province in Zambia. The site was chosen because NTH is the largest health institution and referral centre in the northern part of Zambia with a bed capacity of 851 catering for more than 15.1% (1,972,317) and 6.3% (833,818) of the total Zambian people in Copperbelt and North Western Provinces respectively (GRZ, 2010). The **inclusion criteria** were male or female adults bedsiders aged ≥18 years who were informed and consented to participate in the research. Since NTH has a bed capacity of 851, therefore, it was assumed that there is one bedsider per patient on a bed. The participants were selected because they are 'required' to be in the hospital sometimes for days or even months depending on the nature of illness of the patient thus there was enough researcher-participant contact time to exhaust the research questions. **Multi-stage sampling** was used. First **Stratified random sampling** according to the number of floors i.e. seven floors. Only floors which admit patients were considered, hence 363 out of 851 outpatient beds were excluded. **Simple random sampling** via Microsoft excel 2016 was then used at floor level with detailed information about the patient or bed numbers in the respective floors available from the sister in charge of the various wards. After accounting for a 10% non-response bias, a **sample size** of 228 was determined using '*statcalc*' function of Epi Info version 7.1.5.2. The parameters entered were population size of 488, expected frequency of 50%, confidence limit of 5%, design effect of 1 and cluster of 1 (Dean et al., 2017). Data was collected in October, and November 2016 using a **researcher validated structured questionnaire** in English, the scope of questions was guided by extensive literature review and expert opinion. Questionnaire validation and identification of data collection issues were via a **pilot study** done in August 2016 based on the proposed methodology and used the first six patients that were available. The pilot identified shortcomings which bordered mostly on comprehension issues with questions (2.3, 3.4 and 4.3) the protocol was then amended accordingly. **Measurement:** Bedsiders welfare is affected by the social determinants of health which are the conditions bedsiders experience as they care for their patient at NTH. Determinants include Psychosocial – emotions experienced when caring for the patient, perceptions, relationship with the patient, social support networks; Economic – employment, income; Physical – availability of food, distance to the hospital; Spiritual – believing in a higher power; Bedsiders personal characteristics – Gender, Age, Marital status. Data was entered, cleaned and analysed using SPSS version 25, **missing data** was not included in the analysis. Patient demographics such as gender, age were reported using descriptive statistics. **Inferential analysis** was done using Monte Carlo estimate for the Fishers exact test to check for associations among variables. Statistical significance was set at $\alpha = 0.05$. The dependent variable was categorical and titled "time spent in the hospital caring for the patient". **Subgroup analysis** was done using post hoc analysis via Microsoft excel 2016 using commands such as CHISQ.DIST.RT(x^2, df) where x is adjusted residuals obtained from SPSS and df is the degree of freedom. A Bonferronni adjusted p value was then used to determine significance. Chi-square test was not ideal because of assumption violation related to expected frequencies. Fishers test was also not used because the contingency tables were

more than 2x2, and hence the test failed to run because the personal computer reported not having sufficient memory (Kroonenberg and Verbeek, 2018). **Ethical clearance** was obtained from the Tropical Disease Research Centre Ethics Committee in Ndola while NTH management granted permission to access the study site. All participants were informed and consented to participate in the research and confidentiality was maintained.

RESULTS

DESCRIPTIVE INFORMATION

Response rates

199 out of 228 bedsiders completed the interview giving a response rate of 87.3%. Three quarters (75.3%) of the bedsiders were female and the rest male. More than half (56.8%) of the bedsiders were married while some were single (23.9%) (see Table 1).

Patient and Bedsiders Demographics

The patients age was skewed to the right; this meant that much younger patients were admitted in the hospital. While more males (61.4%) were noted to be patients, the opposite was true with most females (75.3%) assuming the role of the informal caregiver for the patient.

Variable	Patient Demographics	Bedsiders Demographics
Age (Median, IQR)	34.5, 27 Shapiro Wilk test p < 0.0005, n = 177	40,20 Shapiro Wilk test p = 0.001, n = 193
Gender	61.4% male, 38.6% female, n = 176	24.7% male, Female 75.3%, n = 178
Marital Status, n = 180	-	56.8% Married 23.9% Single 7.8% Other 5% Divorced 0.6% Cohabiting

Table 1 Shows patient and bedsiders demographics

Physical factors affecting bedsiders experience

As shown in Table 2, many of the bedsiders (67.3%) were Ndola district residents, some were from outside Copperbelt province (18.6%) and a few (14.1%) originated from other districts in the province besides Ndola. Usually, Adults (67.3%) and sometimes children below 18 years (29.1%) were left with the responsibility of taking care of the people at home while the bedsider was in the hospital. In rare cases neighbours (2.4%) assisted in taking care of the people at home while the bedsider was in the hospital and most times, other people were involved such as siblings (23.7%), spouses (21.3%), parents (16%), extended family (13.0%), and grandparents (5.9%). Bedsiders experienced various emotions about leaving someone else to take care of the people at home, almost three quarters (64.0%) were worried while some were frustrated (6.4%), fearful (5.2%) and the rest had mixed feelings. Since Ndola Teaching Hospital is not mandated to provide food for the bedsiders, many brought their food from home (47.7%), other bought (21.1%) or social welfare provided (11.1%) and at times bedsiders depended on well-wishers to provide them food. Despite this, the bedsiders reported that the food was not enough (60.1%).

Variable	Frequency
1.1 District of residence, n = 199	67.3 % Ndola 18.6% Outside Copperbelt province

	14.1% other districts in Copperbelt province besides Ndola	
1.2 Person remained at home, n = 196	62.2% Adults 29.1% Children < 18 years 8.7% No one	
1.3 Person taking care of people at home, n = 168	67.3% Adults 23.2% Children < 18 years 9.5% No one	
1.4 Relationship between bedsider and person taking care of people at home, n = 169	23.7% Sibling (brother or sister) 21.3% Spouse (husband or wife) 16% Parent 13.0% Extended family 5.9% Grandparent 2.4% Neighbour 17.8% Other e.g. Own children	
1.5 Emotions about leaving someone to take care of people at home, n = 172	64.0% Worry 6.4% Frustrated 5.2% Fear 4.7% Happy 4.1% Depressed 4.1% Anxiety	2.3% Other 1.7% Defensive 1.2% Anger 0.6% Loneliness 0.6% Doubt 0.6% Blame
1.6 Source of food during hospital stay, n = 199	47.7% Home 21.1% Buying 11.1% Hospital Social Welfare 8.0% Well-wishers 7% Other 5.0% Share with patient	
1.7 Adequacy of quantity of food, n = 198	60.1% No 39.9% Yes	
1.8 Extent to which physical factors were affecting the health of the patient, n = 195	43.6% Disagree 31.3% Agree 16.4% Neutral 6.7% Strongly disagree 2.1% Strongly agree	
1.9 Satisfaction with patient care given, n = 193	44% Very Happy 20.2% Somewhat happy 20.2% Neutral 14.0% Not very happy 1.6% Not at all happy	

Table 2 Shows the frequency of different physical factors affecting bedsiders

Psychosocial factors affecting bedsiders experience

Different individuals assisted the patient at the bedside, siblings (29.8%) and spouses (23.9%) topped the list and at times the extended family (16%), parents (15.4%), neighbours (8.5%) and grandparents (6.4%). Most bedsiders (47.5%) reported spending between 1 – 6 days taking care of the patient while others reported 1 – 3 weeks (39.4%), 1 – 11 months (8.1%), 1 – 23hours (3%) and greater than 12 months (2%). Different

emotions were expressed toward the patient's health, with most bedsiders being worried (39.3%), others were happy that the patient was improving (19.9%), some were hopeful (13.3%), fearful (9.2%), anxious (4.1%), doubtful (3.6%), frustrated (3.6%), depressed (2.6%) or angry (1.5%). From Table 3, the top five emotions expressed by bedsiders about being in the hospital were worry (42.6%), frustration (14.2%), depression (9.6%), hope (6.6%) and anxiety (5.1%). Less than half (43.5%) of bedsiders disagreed that their presence in the hospital had affected their interaction with others, while a quarter (26.4%) agreed and 16.65% remained neutral. Interaction with relatives (33.6%) was mostly affected, followed by siblings (12.2%), spouses (5.3%), friends (5.3%).

Variable	Frequency	
2.1 Relationship between bedsider and patient, n = 188	29.8% Sibling (brother or sister) 23.9% Spouse (husband or wife) 16% Extended family 15.4% Parent 8.5% Neighbour 6.4% Grandparent	
2.2 Time spent in the hospital caring for the patient, n =198	47.5% 1-6 days 39.4% 1-3 weeks 8.1% 1-11 months 3% 1-23 hours 2% ≥12 months	
2.3 Emotions about the patients health, n = 196	39.3% Worry 19.9% Happy patient is improving 13.3% Hope 9.2% Fear 4.1% Anxiety 3.6% Doubt 3.6% Frustrated 2.6% Depressed 1.5% Anger 1.0% Defensive 1.0% Loneliness 1.0% Other	
2.4 Emotions about being in the hospital, n = 197	42.6% Worry 14.2% Frustrated 9.6% Depressed 6.6% Hope 5.1% Anxiety 5.1% Fear 4.1% Loneliness	4.1% Happy 3.0% Anger 2.0% Defensive 2.0% Other 1.0% Boredom 0.5% Doubt
2.5 Presence in hospital affecting interactions with others, n = 193	43.5% Disagree 26.4% Agree 16.6% Neutral 8.8% Strongly agree 4.7% Strongly disagree	

2.6 Individuals affected, n = 131	33.6% Relatives 26.6% Other 12.2% Brothers or sisters 5.3% Spouse 5.3% Friends 3.1% Patients
2.7 Level of interaction with others affecting well-being of the patient, n = 179	45.8% Disagree 22.9% Agree 22.3% Neutral 6.1% Strongly disagree 2.8% Strongly agree

Table 3 Shows the proportion of different psychosocial factors affecting bedsiders

Economic factors affecting bedsiders experience

Out of the 63.9% of bedsiders who were working, only 35% reported being granted leave from work. Bedsiders mentioned various sources of money used during the hospital stay including family and relatives (47.8%), income (13.3%), well-wishers (12.8%), and borrowed money (6.1%). Most of the bedsiders reported that their income was affected either quite bad (57.3%) or worse (19.3%) while for a few (13.0%) their income remained the same (see Table 4).

Variable	Frequency
3.1 Employment status, n = 191	36.1% No 63.9% Yes
3.2 Leave granted if working, n = 60	65% No 35% Yes
3.3 Source of money during hospital stay, n = 180	47.8% Family and relatives 20.0% Other 13.3% Income 12.8% Well-wishers 6.1% Borrowed money
3.4 Effect of hospital stay on source of income, n = 192	57.3% Quite bad 19.3% Worse 13.0% Still the same 6.8% Couldn't be better 3.6% Improving
3.5 Extent to which financial situation affecting well-being of the patient, n = 188	37.2% Agree 25.5% Disagree 18.6% Strongly agree 14.9% Neutral 3.7% Strongly disagree

Table 4 Shows how different economic factors affect bedsiders

Spiritual/Religious factors affecting bedsiders experience

99.5% of the bedsiders were Christians and most (99.5%) believed in God while the rest believed in a higher power. Most (46.4%) bedsiders' belief remained the same during their hospital stay while for others (45.8%) there was an improvement, and only a few (6.3%) reporting their beliefs becoming bad (see Table 5).

Variable	Frequency
4.1 Religion for bedsider, n = 198	99.5% Christian 0.5% Atheist Islam Hinduism Other
4.2 Belief for bedsider, n = 196	99.5% God 0.5% Higher power Don't believe in God Other
4.3 Bedsiders perspective of beliefs before and during patient stay in hospital, n = 192	46.4% Still the same 45.8% Improving 6.3% Quite bad 1.6% Worse Couldn't be better
4.4 Extent to which spiritual situation is affecting well-being of the patient, n = 189	49.2% Disagree 30.2% Agree 12.2% Neutral 4.8% Strongly disagree 3.7% Strongly agree

Table 5 Shows the frequency of different spiritual factors affecting bedsiders

Bedsiders perspective of effect of challenges on patient's health outcome

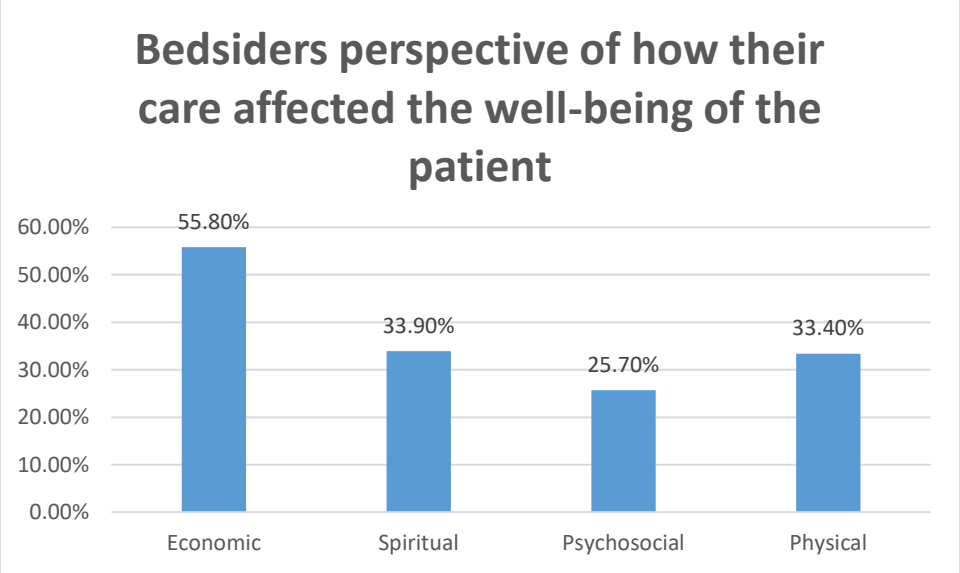

Figure 1 Shows bedsiders perspective of the impact of challenges on the patient's health outcome

Economically, there were varying responses to the extent to which the financial situation was affecting the well-being of the patient, bedsiders strongly agreed (18.6%), agreed (37.2%), a few remained neutral (14.9%) and others disagreed (25.5%). Spiritually, many bedsiders (49.2%) disagreed and some (33.9%) either strongly agreed or just agreed that their spiritual situation was potentially affecting the well-being of the patient. Psychosocially, most bedsiders (45.8%) disagreed that their level of interaction with

others did not affect the well-being of the patient while 25.7% either agreed or strongly agreed and 22.3% remained neutral. Physically, almost half (43.6%) of the bedsiders disagreed that physical factors related to food, residential district were not affecting the health of the patient while 33.4% either agreed or strongly agreed and 16.4% were undecided (see Figure 1).

ASSOCIATION BETWEEN BEDSIDERS TIME SPENT IN THE HOSPITAL AND DEMOGRAPHICS/CHALLENGES FACED USING MONTE CARLO ESTIMATE OF FISHERS EXACT TEST

There was a statistically significant relationship between time spent in the hospital by bedsiders and the following: employment status (p 0.027), satisfaction with care given (p 0.034), extent to which financial situation was affecting the well-being of the patient (0.030), and presence in the hospital affecting interaction with others (0.013), see Table 6.

Independent variables	Monte Carlo estimate	P value
1.9 Satisfaction with patient care given	24.598	0.034
2.5 Presence in hospital affecting interactions with others	26.327	0.013
3.1 Employment status	24.457	0.027
3.5 Extent to which financial situation affecting the patients well-being	24.510	0.030

Table 6 Shows variables which achieved statistical significance using Monte Carlo estimates of Fishers exact test

Post Hoc Analysis using Microsoft Excel

Post hoc analysis showed that bedsiders who spent between 1 -23 hours in the hospital also reported that their presence was not affecting interactions with others. This was significant because the p value of 0.000804 was lower than the Bonferroni adjusted p value of 0.002. For Besiders who stayed caring for the patient 1 – 6 days, most where farmers. However, this was not significant because the p value of 0.0027 was slightly larger than the Bonferroni adjusted p value of 0.002. This would have implied that the economic hardships associated with prolonged bedsider activity affected mostly farmers, however, this was not the case as the result was not significant. Similarly, bedsiders who spent more than 12 months strongly agreed (p 0.00341) that their financial situation was affecting the well-being of their patient. However, the p value was also higher than the Bonferroni adjusted p value of 0.002 hence was not significant.

DISCUSSION

Gender and Age Inequality still experienced

The fact that three quarters (75.3%) of the bedsiders were female indicates there is gender inequality when it comes to caring for patients. Furthermore, bedsiders age was not normally distributed (p = 0.001 as reported by Shapiro Wilk test) with median 40 years. Hence this implicates older females to be at highest risk of experiencing any challenges associated with caring for patients. This is inconsistent with a United Nations Secretary General's report which emphasises that care work must be recognised, valued and measured and must be shared between men and women (Chitayat, 2009). However, the test of association showed no statistically significant relationship between bedsiders time spent caring for the patient and demographics such as gender, age, marital status. The gender and age disparities are also consistent with a Kenyan study where females in the age group 46-55 years were the most common bedsiders in a hospital setup

(Johnston, 2017). A Nigerian study also report similar results that bedsiders were mostly adult female, married and were children to the patients. Furthermore, the Nigerian study showed that there was no statistically significant difference in the burden of caregiving according to relationship to patient, educational level, ethnicity, religion, marital status. There was equally no statistical significance between gender and burden of caregiving determined using the Zarit Burden Interview (Oyegbile and Brysiewicz, 2017).

Physical Factors affecting bedsiders experience

This is the first local study to consider how physical factors affect the bedsider such as long distances to the hospital, inadequate food. This study showed that bedsiders more prone to experience physical factors were siblings (29.8%), spouses (23.9%) and extended family members (16%) (see Table 2).

Psychosocial factors affecting bedsiders experience

Most bedsiders (45.8%) disagreed that their level of interaction with others did not affect the well-being of the patient while 22.9% agreed and 22.3% remained neutral (see Table 3). In this study, the top 5 patient emotions experienced and potential barriers to effective communication included worry (42.6%), frustration (14.2%), depression (9.6%), hope (6.6%), anxiety (5.1%). This is similar to a Nigerian study where 50% of individuals mentioned that caring for the bedsider did not affect the relationship with other family members. Furthermore, in the Nigerian study by Oyegbile and Brysiewicz, (2017), 64.6% of bedsiders felt their social and family life was often frequently or nearly always stressed with juggling between caring for the patient and other responsibilities. The Nigerian research was limited because it assessed a few emotional states such as anger, embarrassment, and fear. This study's results also resonated with a Kenyan study where bedsiders also mentioned that they were emotionally stressed as they cared for their patient and also juggling caring for the patient and other responsibilities (Johnston, 2017). In this study, further analysis using Monte Carlo estimate for Fishers exact test showed that there was a statistically significant association with the length of time spent in the hospital caring for the patient and the social interaction of bedsiders with other people (0.013). This was noted in bedsiders who spent less than 24 hours caring for the patient and this may not be true for longer hospital stays due to the involvement of family and friends.

Economic factors affecting bedsiders experience

55.8% of bedsiders either agreed or strongly agreed that the financial situation was affecting the well-being of the patient (see Table 4). Despite Zambian healthcare services to patients being free to promote universal health coverage, the bedsiders out of pocket expenses, especially if not covered by any risk pooling (i.e. health insurance) has the potential to drive the families taking care of the patients into financial catastrophe and impoverishment. Similar to a Kenyan study, inadequate financial compared to medical factors, emotional/psychosocial factors and societal/cultural factors was also the most prominent challenge with bedsiders describing hospital bills far beyond their means. At times families had to sacrifice money for school fees, food and rent to service hospital bills (Johnston, 2017). A Nigeria study echoed similar findings by showing that 71.9% of bedsiders often frequently or nearly always felt they did not have sufficient money to care for both the patient and other expenses (Oyegbile and Brysiewicz, 2017). In this study, inferential analysis showed that there was a statistically significant association between the length of time spent in the hospital caring for the

patient and employment status (p 0.027). Most bedsiders (63.9%) were in employment, yet they were not granted leave (65%) from their workplaces. This caused unproductivity which could have led to the loss of income and resources necessary to improve the patients health status. Furthermore, it was noted that there was a statistically significant association (p 0.030) between the length of time in the hospital caring for the patient and the extent to which the financial situation affected the well-being of the patient.

Spiritual/Religious factors affecting bedsiders experience

This study showed that almost all participants (99.5%) were Christians who believed in God. The study also showed that the bedsiders spiritual support was very high because the perspective of their religious belief before and during their patients stay in hospital remained the same (46.4%) or had improved (45.8%) (see Table 5). Spiritual support has been shown to help cope with psychosocial stress experienced by bedsiders in studies as participants relied on their God/faith via prayer and reading the bible as a source of strength (Johnston, 2017; Streid et al., 2014; Lentoor, 2017). Similar to the other studies, this study showed that most (49.2%) disagreed that the spiritual situation harmed the well-being of the patient, and this was important to help with the coping mechanism.

IMPLICATIONS OF THIS STUDIES FINDINGS

One of the characteristics of primary bedsider compared to the secondary bedsider is that the former assumes most of the responsibilities of caregiving which also translates into spending more time caring for the patient. The potential for bedsiders to face challenges is affected by the following factors as shown by their length of stay:

- < 24 hours: Psychosocial factors – bedsiders interaction with others (high risk of challenges)
- < 24 hours: Clinician-bedsider communication, Satisfaction with patient care (Low risk)
- 1 – 6 days: Economic factors, Informal employment status e.g. Farmer (potentially high risk)
- > 12 months: Economic factors, perception of money situation affecting patient's health (potentially high risk)

Bedsiders utility derived from their patients utilisation of health services for less than 24 hours was very high due to the satisfaction with the patient care given at NTH. This posed a low risk to psychosocial, economic and physical challenges. However, in the same short duration of time (i.e. < 24hours) bedsiders spent in the hospital, psychosocial challenges relating to reduced interaction with others were reported. Bedsiders who had stayed more than 24 hours in the hospital were more prone to economic challenges. After one week of stay, bedsiders were at potentially highest risk of facing economic challenges probably due to reduced or no income resulting from loss of productivity. However, after 12 months, bedsiders were of the perception that the money situation was dire enough to begin affecting the patients' health. The implications are further discussed below under appropriate headings.

PUBLIC HEALTH CONTEXT

The various challenges experienced by bedsiders, especially those with prolonged hospital stay predisposes them to stress and increased risk of acquiring non-communicable diseases (NCDs). Hence, this research contributes to Sustainability Development Goal (SDG) number 3, which promotes Good Health and Well-being for all at all ages. This study identified the bedsiders challenge of inadequate finances as a major threat to the realisation of the Universal Health Coverage (UHC) approach in Zambian communities. UHC which cuts across all health-related SDG's is a

fundamental human right which seeks to ensure that all bedsiders have access to healthcare services for their patients even if they can't pay for them and also protect them from financial harm resulting from the cost of using healthcare services (WHO, 2019).

STRENGTHS OF THIS STUDY

A high response rate (87.3%, 199/228) was achieved because of better researcher engagement with participants due to face to face interviews using a structured paper questionnaire compared to online or telephone interviews and this reduced **non-response bias**. The self-autonomy of the few (12.7%) who chose not to participate was respected according to research ethics. A sample size of 199/228 to investigate the bedsiders challenges from only one tertiary (3rd level) institution (NTH) is a good representation (i.e. **external validity**) of possible bedsider challenges likely to be experienced in the other seven tertiary hospitals in Zambia (GRZ/MOH, 2016). However, the challenges at a 3rd level hospital may not necessarily be the same as the hierarchy of specialisation goes down, i.e. at second and first level hospitals**.** The use of stratified random sampling for recruitment of bedsiders improved representativeness and overall **generalisability**. The extent to which this study's structured questionnaire measured what it was supposed to measure (**construct validity**) was determined using piloting which revealed comprehension issues and these were addressed.

LIMITATIONS AND FUTURE WORK

Potential confounders (e.g., age, sex, marital status) to the identified challenges affecting bedsiders were not assessed using more robust inferential statistics such as multivariate ordinal regression. Research should be conducted on the multifactorial factors associated with coping mechanism of bedsiders in different healthcare setups in both primary healthcare and secondary healthcare facilities in Zambia. Outside the healthcare system, caregiving experiences of outpatients in the community may be different from those of in patients in a hospital setup. A follow-up study to assess bedsiders (financial) challenges should be conducted to assess the impact of the National Health Insurance Scheme which operationalised in February 2020.

CONCLUSION

Bedsiders welfare was affected by inadequate finances as the number one challenge with the highest impact on the patient's well-being especially with lengthy hospital stays. The financial situation was probably worsened especially for informal sector workers (e.g. bedsiders who were farmers) due to loss of income from non-productivity. With shorter hospital stays for bedsiders, the highest risk of challenges was related to psychosocial factors because of less interaction with others. Better satisfaction levels especially with shorter hospital stays improved bedsiders welfare.

ACKNOWLEDGEMENT

I wish to acknowledge the invaluable support received from Dr Chileshe Mutale-Chibangula and the entire public health department for making this work possible. I would also like to thank Ms Njinga Kankinza, Dr Boniface Kawimbe and Dr Alfred Sichilima for their valuable inputs. My heartfelt thanks to my wife Chanda Mulenga-Mutanekelwa for the love, support and care during the research process

CONFLICT OF INTEREST

Authors declare no conflict of interest associated with this work.

FUNDING

None

DATA AVAILABILITY STATEMENT

No data are available

CONTRIBUTORS

IM conceived the study and developed the original draft of the manuscript and analysed the data. MCC provided critical feedback and made substantial contribution to the

development of the final manuscript. All authors read and approved the final manuscript.

REFERENCES

Bellou, P. and Gerogianni, K.G. (2007) 'The contribution of family in the care of patient in the hospital', *Health Science Journal*, vol. 3, pp. 1-6.

Chitayat, D. (2009) *Gender Equality in Caregiving: The United Nations Response*, July, [Online], Available: https://www.apa.org/international/pi/2009/07/un-gender [1 July 2019].

Dean, A.G., Armer, T.G., Sunki, G.G., Friedman, R., Lantinga, M., Sangam, S., Zubieta, J.C. and Sullivan, K.M. (2017) *Epi Info, a database and statistical program for public health professionals*, [Online], Available: https://www.cdc.gov/epiinfo/index.html [3 October 2018].

Gates, D.M., Gillespie, G.L. and Succop, P. (2011) 'Violence Against Nurses and its Impact on Stress and Productivity', *Nursing Economic*, vol. 29, no. 2, pp. 59-66.

GRZ (2010) *Population Size*, [Online], Available: http://www.zamstats.gov.zm/census/cen.html [6 February 2016].

GRZ (2015) *Public Welfare Assistance scheme*, [Online], Available: http://www.mcdmch.gov.zm/public-welfare-assistance-scheme [6 February 2016].

GRZ/CSO (2018) *Zambia in Figures 2018*, [Online], Available: https://www.zamstats.gov.zm/phocadownload/Dissemination/Zambia%20in%20Figure%202018.pdf [18 January 2020].

GRZ/MOH (2016) *Zambia National Health Strategic Plan 2017-2021*, [Online], Available: https://www.moh.gov.zm/docs/ZambiaNHSP.pdf [13 December 2019].

Johnston, H. (2017) *Caring for caregivers: challenges facing informal palliative caregivers in Western Kenya*, [Online], Available: https://digitalcollections.sit.edu/isp_collection/2684 [5 November 2019].

Koukia, E., Mangoulia, P., Gonis, N. and Katostaras, T. (2013) 'Violence against health care staff by patient's visitor in general hospital in Greece: Possible causes and economic crisis', *Open Journal of Nursing*, vol. 3, pp. 21-27.

Kroonenberg, P.M. and Verbeek, A. (2018) 'The Tale of Cochran's Rule: My Contingency Table has so Many Expected Values Smaller than 5, What Am I to Do?', *The American Statistician* , vol. 72, no. 2, pp. 175-183.

Lentoor, A.G. (2017) 'Psychosocial challenges associated with caregiving in the context of Pediatric hiV in rural eastern cape', *Public Health*, vol. 5, no. 127, pp. 1-8.

Li, J. and Song, Y. (2019) 'Formal and Informal Care', in Gu, D. and Dupre, M. *Encyclopedia of Gerontology and Population Aging*, eds edition, Cham: Springer.

Oyegbile, O.Y. and Brysiewicz, P. (2017) 'Exploring caregiver burden experienced by family caregivers of patients with End-Stage Renal Disease in Nigeria', *International Journal of Africa Nursing Sciences*, vol. 7, pp. 136-143.

Streid, J., Harding, R., Agupio, G., Dinat, N., Downing, J., Gwyther, L., Ikin, B., Mashao, T., Mmoledi, K., Moll, A.P., Sebuyira, L.M., Higginson, I.J. and Selman, L. (2014) 'Stressors and Resources of Caregivers of Patients With Incurable Progressive Illness in Sub-Saharan Africa', *Qualitative Health Research*, vol. 24, no. 3, pp. 3174-328.

WHO (2018) *Noncommunicable diseases country profiles 2018*, [Online], Available: https://www.who.int/nmh/countries/2018/zmb_en.pdf?ua=1 [25 February 2020].

WHO (2019) *SDG 3: Ensure healthy lives and promote wellbeing for all at all ages*, [Online], Available: https://www.who.int/sdg/targets/en/ [21 May 2019].

WHO (2020) *Violence and Injury Prevention*, [Online], Available: https://www.who.int/violence_injury_prevention/violence/workplace/en/ [2 January 2020].