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RESEARCH ARTICLE

Caring Critically Ill Patients in the General Wards in Tanzania: Experience of Nurses and Physicians

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Abstract

Background: Studies in Tanzania have reported that many hospitals in the country have no intensive care unit (ICU) where critically ill patients could be managed thus critically ill patients are cared for with other non-critical patients. The aim of this study is to describe nurses and physicians' experience of caring critically ill patients in the general wards at the Regional hospital.

Methods: A descriptive qualitative design was used. Purposeful sampling method was used to enroll 10 nurses and 5 physicians working in various departments at the regional hospital. Using semi-structured interview guide, 15 interviews were conducted. Qualitative content analysis framework guided analysis of data.

Results: Three (3) major themes emerged from the data of nurses and physicians' experiences of providing care to critically ill patients at the regional hospital. These included; being present and staying close, being powerless and lacking caring abilities.

Conclusion: Nurses and physicians at regional hospital face multifaceted experiences when caring critically ill patients. Lack of equipment supplies and medicine, lack of expertise in caring for critically ill patients and lack of a special room to care for the critically ill patients, made them feel powerless in providing appropriate and effective care to critically ill patients.

Keywords

Experiences, Critically ill, Physicians, Nurses, ICU, Tanzania

Abbreviations

ICU: Intensive Care Unit; WHO: World Health Organisation; MD: Medical Doctor; AMO: Assistant Medical Officer; EN: Enrolled Nurses; RN: Registered Nurses; NHIF: National Health Insurance Fund; MUHAS: Muhimbili University of Health and Allied sciences; P: Participant; SSI: Semi-structured Interviews

Introduction

The intensive care unit (ICU) provides a continuous monitoring system for critically ill patients who have the potential for recovery or are in a life-threatening situation. Critically ill patients are mostly victim patients from motor vehicle crashes, violence, burns, drowning, falls, patients with multiple complications from health alignment like myocardial infarctions, congestive heart failure, or cerebral vascular accidents [1]. Therefore, optimal, fast and professional care is highly needed to stabilize critically ill patients, this is because the more critically ill the patient is, the more the life is threatened and at risk [2]. Therefore, management of critically ill patients should be thoughtfully planned. Nevertheless, nurses and physicians should be able to assist the patient to cope with stress, pain and anxiety during their stay in the ICU, and also be able to support the family from being worried of losing their beloved ones and therefore they should provide good care [3]. The place (ICU) where serious patients could be managed need to be quite and free of noisy to facilitates patients sleep and rest [4]. Some studies have indicated important of keeping the critically ill patients in the single private rooms [5]. To the contrary, many hospitals in Tanzania have no intensive care unit (ICU) where critically ill patients could be managed [2,6] thus critically ill patients are cared for with other non-critical patients. In these hospitals, wards patients are overcrowding, there is scarce of live saving equipment and medical supplies and trained staff to manage critical patients [6]. In the ICU, critically ill patients could receive appropriate ho-

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listic care, to promote their healing and that of their families. Patients who are managed in the ICU benefit from adequate specialized trained staff and specialized equipment such as mechanical ventilators, infusion pumps and continuous monitoring of their vital signs [7]. For example, in Australia, the nurse patient ratio in the ICU is 1:1 and for the dependency unit 1:2 [8]. Critically ill patients who are admitted in the general ward may exhibit premonitory signs of adverse events, which may be observed but cannot be acted upon by nurses and physicians because of human and non-human resource scarcity and environment un-conducive to manage such patients [9]. Management and care of critically ill patients who are admitted in the ward is suboptimal because in these settings, staff and monitoring machines are limited [10]. Adequate staff and equipment could assist in quick management of patients when adverse signs are identified [9].

Experiences and challenges of caring for critically ill patients in the ICUs have been reported in some studies globally and also in Africa including Nigeria and South Africa [11,12]. In Tanzania, needs of the family of critically ill patients and their satisfaction with care were reported [13]. Nevertheless, none of these studies reported on health care providers' experience of caring for critically ill patients in the general wards other than in the ICU. While Fowler and colleagues [14] described difficulties in managing critically ill patients in the wards due to their vulnerabilities, experience of nurses and physicians in caring critically ill patients in general wards have not been explored. This study therefore, describes experience of nurses and physicians caring for critically ill patients in the general wards at the regional hospital.

The study adopted the following key operational terms:

- *Critically ill patient*: Is a patient who is admitted in the regional hospital because of life threatening or potential life-threatening physiological alterations requiring intense and vigilant medical care.
- *Critical care*: Is a specialized care given to patients with life-threatening conditions who require more comprehensive care and constant monitoring usually in intensive care units.

Methods

Study design

This study used an exploratory descriptive qualitative design [15] to gain in-depth understanding of nurses' and physicians' experiences of caring for critically ill patients in the general wards of the regional hospital.

Setting

The study was conducted at Tanga regional referral hospital in Tanzania. The regional hospital in this context refers to the second level of referral care system that receives patients from the district level hospitals. In these hospitals on average shall have between 200-400 beds and provides specialised care and training of health professionals [16]. The Tanga referral regional hospital was selected because it was a regional and teaching hospital offering health care services to clients including critically ill patients. It also serves as a teaching hospital for intern doctors, nurses and assistance medical officer students. The hospital has capacity of 412 beds and it receives about 16,520 patients annually [17]. In the hospital, critically ill patients are managed in the general wards with other patients.

Participants and recruitment

Participants for this study were nurses and physicians working in the 4 departments of the hospital. The inclusion criteria were; physicians and registered or enrolled nurses who had been working at the hospital for 3 years or more to ensure that participants had the opportunity to manage a couple of critically ill patients and therefore would provide rich information based on these experiences, thus gaining insight and understanding of what it is like to care critically ill patients in the general wards. Purposive sampling method [18] was used to enroll 15 participants from 4 departments namely obstetrics and gynecology, pediatrics, medical and surgical that manages critically ill patients. This sampling technique ensured useful and rich data from the participants. The heads of the departments assisted with identification of participants based on the set inclusion criteria. Participants were then met with the co-author (HM) who provided information about the study purpose and issues of confidentiality. Thereafter the interview time was set with participants who agreed to participate in the study.

Data collection

Data was collected from the 4 departments through semi-structured interviews. A semi-structured interview is a method of data collection where the researcher and the participant engage in a formal conversation following a guide to a specific topic [19]. Fifteen (15) semi-structured interviews (SSI) were conducted with physicians and nurses who have worked for 3 or more years in the departments of the hospital. Five (5) semi-structured interviews with physician and 10 with nurses were conducted after participants had completed their duty or when they were off duty so that it does not interfere with their daily working routines. Participants were explained the study purpose, procedure, privacy policy and issues of confidentiality, right of withdrawal and explanation about the consent. All participants provided written consent for their participation and oral consent was provided on the use of audio recorder. During interviews semi-structured interview guide was used (see Table 1) that aimed at exploring experiences of nurses and physicians of caring for critically ill patients. The semi-structured interview guide

Table 1: Interview questions.

1	**Experiences with managing critically ill patient**
	- Could you please explain about your experience of caring for critically ill patients?
2	**Challenges of managing critically ill patients**
	- What obstacles do you encounter when caring critically ill patient? Can you please provide specific examples?
	- How did you overcome these challenges? Can you explain why you think these challenges exist?
	- What would you recommend as the best strategies to overcome these challenges?
3	**Improving care**
	- What could be the best way of caring critically ill patients?

had open ended questions and probes that allow the researcher to explore issues as they emerged and elicited broader and deeper views from participants [19]. Interviews were conducted in Kiswahili, the National language spoken fluently by all participants. Interviews lasted between 30 to 45 minutes to an hour.

Data analysis

Qualitative content analysis inspired by Graneheim and Lundman [20] guided the analysis of data. Qualitative content analysis was chosen because it is a concrete analytical framework that could be readily applied and easily followed. All audio recorded interviews were transcribed verbatim by a person fluent in the local dialect. The Kiswahili transcripts were then translated into English by the co-author (HM) and thereafter the first author (LTM) who is a nurse-midwife with social sciences background and good command of both languages crosschecked the accuracy of translations and completeness against the original notes before data was ready for coding. Gaps identified, or clarifications needed were discussed and corrections made accordingly. Translated transcripts were read through several times to enable a general understanding of the participants' accounts. Paragraphs or pieces of the text referring to specific experiences or challenges related to caring of critically ill patients were identified and formed into meaning units. These meaning units were further condensed into codes that were sorted according to their similarities or differences into themes.

Ethical Considerations

The study was approved by Research and Publication Committee of Muhimbili University of Health and Allied Sciences (MUHAS) (Ref. No. MU/PGS/SAEC/Vol.XIV/). Permission to conduct the study was provided by the management of the regional hospital. All participants provided written informed consent after they were given information about the aim of the study and issues of confidentiality. Further, they were informed about voluntary participations and that they could decide to withdraw their participation at any time.

Results

Characteristics of participants

The 15 health care providers interviewed were between 32-59 years of age. Among the 15 participants, 5 were medical practitioners (MD or AMO) and 10 were nurses (EN or RN). Seven (7) had working in the wards where they had interviewed for 9 years or more, and 8 had attained education beyond Diploma.

Experiences of caring critically ill patients

Three (3) themes were extracted from semi-structured interviews of physicians and nurses' experience on caring for critically ill patients and direct quotes supporting the themes are shown in italics. The person in direct quotes was coded by the individual interview number and sex to maintain confidentiality.

Being present and staying close

Caring for critically ill patients involves the demand for a holistic approach and close monitoring and support from specialized equipment and medications in order to ensure normal bodily functions. Participants thought that for the effective care of the critically ill patients, these patients who are being cared with other patients in the general ward need to be near the nursing station so that they could be monitored closely, and appropriate action taken promptly when needs arise:

"… critically ill patients if managed in the ward they need to be close to the nursing station, ...and the nurses have to be close to the patients. Critically ill should be on the beds that are close to the nursing station so that they can be monitored and cared easily" (P10-Female).

For the reason of continuously monitoring and quick response to critically ill patients who are in the general wards, life support and monitoring machines, equipment and supplies are brought closer to them to ensure that they are easily accessible when needed:

"We usually put a screen around the critically ill patient so that we know that this patient needs close care and we prepare oxygen concentrators, suction and other equipment and keep them close to patients for easy access when need arise…" (P10-Female).

Much as the health care providers would wish to bring facilities near critically ill patients but these facilities

sometimes are not available:

"… You need facilities like monitors near patients … but they are not available". (P3-Female).

Other participants thought that some staff should be assigned to focus their care and attention to critically ill

patients to ensure that they are attended constantly as required:

"… you can commit one or two staff so that they can closely care for critically ill patients. Critically ill patients' vital signs are supposed to be checked every half an hour, but you cannot afford due to the scarcity of the staff" (P10-Female).

Maintaining privacy and confidentiality when managing critically ill patients with other non-critical patients in the general wards was also an issue of concern when managing critically ill patients with other general patients in the same ward:

"*Critically ill patients need privacy, of course all patients' need privacy, but because the critically ill patient is very sick unlike other patients...in the ward other patients and relatives keep staring at critically ill patients who usually have tubes and machines around them and during this time nurses fails to effectively provide care…"* (P8-Female).

They therefore thought that having a special room or an ICU where critically ill patients could be cared of would help in improving care of critically ill patients and their outcomes:

"… critically ill patients need to be managed in the ICU, so that intubation can be done, or patients can be kept in the monitor machines for continuous ventilation. …but in the ward, you cannot do, you can only do little that you can be able to do" (P1-Male).

Being powerless

Availability of staff, equipment, medications and other medical supplies is critical in providing high quality health care and improve overall patients' health outcomes. Participants describe their powerlessness to efficient provide care to critically ill patients in situations with lack of adequate staff, drugs, equipment and supplies. They reported that the staffing level was very minimal compared to numbers of patients admitted in the general wards. Therefore, the few staff available had to take care of both critically ill patients and those required general management, for them this was a challenge:

"… when you have 50 patients in the ward and a few who are critically ill, it's not easy to look after them frequently as you are supposed to care all of them…critically ill patients especially bed ridden ones, need change of position and they are usually assisted on their beds… you are also expected to participate in the ward rounds ...therefore regardless the existence of guideline for caring critically ill patients but is difficult to follow because we are very few…" (P13-Female).

"… the close monitoring of patients is not possible, this is because we are few and have many patients to look after" (P5-Female).

Because of shortage of staff, participants reported being overworked and not having adequate time to provide care to other patients while critically ill patients were waiting for their services:

"… you are only two staff on duty, there are may be three (3) serious cases it becomes more overloaded, there is a post-operative' patients to be cared off, there are patients need wound dressing, responsibilities become too many, truly this is a problem…" (P4-Female).

"... as a supervisor I will run and try to supervise everywhere now you cannot…, responsibilities are getting bigger, truthfully it is becoming a problem. For the situation like this truthfully staff are in overwhelmed, a nurse or a physician may not even have time to eat because of over responsibilities..." (P2-Female).

Staff commonly gave priority to critically ill patients.

"Yes, my experience is that it affects the care because I am always with the critically ill patients most of the time. Thus, why I told you when I come in the morning I determine/assess who are serious whom I have to give them first priority, the rest I go to them later. It takes time until you reach to attend the rest of patients" (P2-Female).

Inadequate availability of medical supplies is commonly associated with provision of substandard care and reduces staff motivation to work effectively. Participants reported that it was common to ask relatives of the critically ill patients to purchase medicine. However, many times it is difficulties for the family members to purchase them because they are expensive.

"… a doctor may prescribe some medicines for a patient and then the staff goes to the hospital pharmacy unfortunately she comes back with none of the medicine prescribed, then you start looking for the family members who are unable to purchase medicine…you fail to help the patient" (P5-Female).

Sometimes Government exemption is secured to help patients:

"… when patients are unable to purchase medicines when they are not available in the hospital, you cannot leave them to suffer, you would help by consulting people who approve exemption as per government policy, but you find that the drugs needed are not available at hospital…you need to look for other alternatives, to look for help from other sources (P4-Female).

Membership to the National Health Insurance Fund (NHIF) was thought to be the best that would ensure that patients receive medications timely:

"*… patients who are covered by health insurance are easy for us to treat and care because at least most of supplies especially drugs are covered by the insurance. But for those patients who do not have a health insurance even their relatives they run away from them… which*

make our life difficult managing them without medicine" (P4-Female).

Lacking caring abilities

Inadequate possession of the necessary skills may lead to inability to make clinical decisions that are important especially when caring for critically ill patients. Staff caring for critically ill patients needs to have the ability to swiftly make interventions at an early stage to prevent further patient decline based on the findings from patients' continuous assessment. Participants reported that they experienced difficulties providing appropriate and effective management to critically ill patients due to lack of specialized training in critical care management.

"… truly I have never seen (silent moment...). I mean, since I started working in this hospital twenty years ago, I have never seen anyone going for special ICU training …" (P3-Female).

"... majority of staff have not been trained to manage critically ill patients" (P10-Female).

Participants also reported that they had no orientation on the specific equipment needed for managing critically ill patients.

"…at times equipment such as oxygen concentrator is available, but staff member doesn't know how to operate it, because he/she was not taught how to handle those equipment" (P10-Female).

Staff experience was an asset in managing critically ill patients.

"In terms of training we still do not have quality training, therefore I have been using my experience and I continue with that …" (P6-Male).

"… no one is taught how to take care of a critically ill patients, we just teach ourselves through experience we have not received any sort of training at all… like you are shown this is a critically ill patient you are supposed to do this and that …" (P2-Female).

Discussion

The discussions highlighted a number of issues that nurses and physicians come across while caring for the critically ill patients in the general wards. These ranged from difficulties encountered during the caring process that limited their abilities to effectively provide care to critically ill patients.

Participants in this study were unable to provide optimal care to critically ill patients because of the shortage of medical supplies and equipment. Although some studies have reported adequacy of medical supplies for emergency and critical care [2], this study and others [21,22] reported insufficient medical supplies. For example, Mkoka and colleagues attributed the shortage of medical supplies with delay in disbursement of drugs to the health facilities from the relevant department, insufficient budget for medical supplies from central government and lack of accountability within the medical supplies system [21]. Availability of resources has a huge impact on the ability of staff to care for the critically ill patients and contributes to job satisfaction among staff [23] and is the key for safer care [24].

In addition to the shortage of medical supplies, this study also highlights shortage of human resource for health. Just like in most sub Saharan African countries, in Tanzania there is a severe shortage of health professionals across all cadres [25,26] and critical care personnel [2] which affects the quality of care offered. Consistent with other studies on health care system conducted in Tanzania [22,27], this study found shortage of staff in terms of quantity and quality. Participants in this study reported staff shortage that posed challenges in managing critically ill patients and other patients admitted in the general wards. Studies have reported association between high intensity staffing and positive patient outcomes [28,29]. The ICU patient-staff ratio is usually high because the allocation of ICU nurses to patients is influenced by patients' acuity levels, the nurses' competence and the severity of illness of the patient [30]. However, the number of the staff alone may not produce the outcome that is expected but is also dependent on the quality in terms of staff competence, experiences, and motivation [31,32] and good leadership [33].

As reported in this study, managing critically ill patients without having formal training on critical care or intensive care is difficult, findings that are similar to the previous study conducted in Tanzania [2]. Further, managing critically ill patient based on working experiences may result into failure to promptly intervene when the best interest of the patient is in question [34]. This failure could be due to limited technological skills, broad skills and knowledge base and higher level of decision-making skills [11,35,36]. Critically ill patients are at high risk for actual or potential life-threatening health problems requiring intense and vigilant continuous, comprehensive and detailed intensive care from the critical care prepared health personnel [30]. Critical care personnel need to be confident with the use of various monitors and machines [7,37] for sustaining ICU process improvement [38].

In Tanzania there are very few critical care nurses and other intensive care specialists [2]. According to World Health Organization (WHO) report, the shortage of nurses is a result of under investment in training, wages, working environment and management [39]. The shortage of critical care prepared nurses in Tanzania is contributed by the low production of this category of health staff [2]. For example, between 2009 and 2015, only 40 critical care and trauma nurse specialists graduated at the Muhimbili University. This is the small number to cater for more than 3000 health care faci-

lities in the country of over 40 million people. Further, lack of financial support for training contributes to this challenge [40]. In realizing the demand for critical care and trauma nurses and knowing that nurses require skills and knowledge of caring for critically ill patients that are not included in their basic nursing programs. The School of Nursing at Muhimbili University has included basic critical care and Trauma nursing course in the undergraduate nursing and midwifery curriculum to equip students with basic competencies to manage critically ill patients [41]. However, since this program is only offered in this University, it is likely that most nurses in Tanzania graduate without this important competency.

Managing critically ill patients in the general ward with other general patients requiring less attention was reported to contribute to challenges of managing critically ill patients. Critically ill patients require close monitoring which is not supported by the limited staff and other resources when these patients are cared in the general wards. As noted elsewhere [9,34], critically ill patients who are being managed in the ward are potentially at risk of serious deterioration. This is because patients' deteriorating signs may exist without being noticed and acted up on by the medical staff. Early identification of clinical deterioration is important in preventing subsequent cardiopulmonary arrest and to reduce mortality, but sometimes patients' conditions deteriorate before nursing and medical staff recognizes and respond to the signs [42]. Delayed management and treatment for these highly vulnerable patients may bring about increasing patient mortality and morbidity [34]. Therefore, critically ill will benefit from being managed in a special room "Intensive Care Unit (ICU)", a unit designed according to hospital needs for caring patients who need a vigilant care with specialized personnel in the field as well as sophisticated equipment such as cardiac monitor, mechanical ventilation with oxygen therapy, following their life-threatening health conditions [43]. In the ICU, a combination of effective process of care and appropriate structure increases the likelihood that every patient will receive the correct interventions at the appropriate time(s) and interventions will be performed properly and cost effectively. Moreover, this is the best environment especially in areas where facilities and staff are limited. This is because few staff available will be forced to transport equipment to the patient's bedside throughout the ward and this may delay patient's care. Again, as reported in this study, it's very difficult for the staff to maintain privacy and confidentiality when managing critically ill patients with other non-critical patients in the general wards because of inadequacy of medical supplies and patients' overcrowding. Managing critically ill patients in ICU would be a solution to effective use of both human and non-human resources especially in situations of inadequacy.

While this study was conducted with rigor and provides important insights into the experience in caring for critically ill patients in the general wards, there are some limitations that should be acknowledged. Only 15 skilled health personnel including 10 midwives and 5 physicians were interviewed. The number of skilled personnel interviewed is small, however qualitative sample size has no rule it depends on what the researcher wants to know, the purpose of the research study, what can be done with available time and resources and it should be based on expected reasonable coverage of the phenomenon given the purpose of the study and interest [15].

Conclusion

This study aimed to explore the experiences of nurses and physicians in caring for critically ill patients in admitted in the general wards. It highlights important challenges that impacted on the provision of professional and ethical care to critically ill patients. Nurses and physicians working at regional hospital were unable to provide optimal care to critically ill patients because of shortage of critical care prepared personnel, medical equipment and supplies. They have to deal with competing demands of caring for the critically ill patients and other patients who need general care in the same ward. Further, lack of the ICU where critically ill patients could be managed impacted on their ability to promptly and effectively provide professional and ethical care to critically ill patients.

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References

1. Bala R, Kaur S, Yaddanapudi LN (2010) Exploratory study on nursing manpower required for caring critically ill patients in intensive care unit. Nurs Midwifery Res J 6: 71-80.
2. Baker T, Lugazia E, Eriksen J, Mwafongo V, Irestedt L, et al. (2013) Emergency and critical care services in Tanzania: A survey of ten hospitals. BMC Health Services Research 13: 140.
3. Obogo MMW (2010) Perceived needs and level of satisfaction with care by family members of critically ill patients at Muhimbili intensive care units Dar es salaam. Muhimbili University of Health and Allied Science.
4. Pulak LM, Jensen L (2016) Sleep in the intensive care unit: A review. J Intensive Care Med 31: 14-23.
5. Huisman ERCM, Morales E, van Hoof J, Kort HSM (2012) Healing environment: A review of the impact of physical environmental factors on users. Build Environ 58: 70-80.
6. Tim Baker (2011) Preliminary report for the research project: The current state of emergency and critical care in Tanzania. Karolinska, Sweden.

7. Lakanmaa R, Suominen T, Perttilä J, Ritmala-Castren M, Vahlberg T, et al. (2012) Basic competence in intensive and critical care nursing: Development and psychometric testing of a competence scale. J Clin Nurs 23: 799-810.
8. (2003) The Australian college of critical are nurses: ACCCN ICU Staffing position statement on intensive care nursing staffing.
9. Morrice A, Simpson HJ (2007) Identifying critically ill ward patients. Aust Crit Care 23: 23-32.
10. Brahmbhatt N, Murugan R, Milbrandt EB (2010) Early mobilization improves functional outcomes in critically ill patients. Crit care 14: 321.
11. Matlakala MC, Bezuidenhout MC, Botha ADH (2014) Challenges encountered by critical care unit managers in the large intensive care units. Curationis 37: 1146.
12. Okafor U (2009) Challenges in critical care services in sub-saharan Africa: Perspectives from Nigeria. Indian Soc Crit Care Med 13: 25-27.
13. Kohi TW, Obogo MW, Mselle LT (2016) Perceived needs and level of satisfaction with care by family members of critically ill patients at Muhimbili National hospital intensive care units, Tanzania. BMC Nurs 15: 18.
14. Fowler RA, Adhikari NK, Bhagwanjee S (2008) Clinical review: Critical care in the global context-disparities in burden of illness, access, and economics. Crit Care 12: 225.
15. Patton MQ, Cochran M (2002) A guide to using qualitative research methodology. Médecins Sans Front Paris, 1-36.
16. (2003) Ministry of health: National health policy. Ministry of Health, 1-37.
17. (2014) The united republic of Tanzania regional administrative and local: Tanga regional referral hospital annual report. Tanga.
18. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, et al. (2015) Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Adm Policy Ment Health 42: 533-544.
19. Kvale S (1996) Interviews: An introduction to qualitative research interviews. (2nd edn), Longman, Melbourne.
20. Graneheim UH, Lundman B (2004) Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. Nurse Educ Today 24: 105-112.
21. Mkoka DA, Goicolea I, Kiwara A, Mwangu M, Hurtig AK (2014) Availability of drugs and medical supplies for emergency obstetric care: Experience of health facility managers in a rural District of Tanzania. BMC Pregnancy Childbirth 14: 108.
22. Mselle LT, Moland KM, Mvungi A, Evjen-Olsen B, Kohi TW (2013) Why give birth in health facility? Users' and providers' accounts of poor quality of birth care in Tanzania. BMC Health Serv Res 13: 174.
23. Dunn SV, Schmitz K (2005) Nurses' perceptions of patients' requirements for nursing resources. Aust J Adv Nurs 22: 33-40.
24. Thomson, Richard DLH (2007) Safer care for the acutely ill patient: Learning from serious incidents.
25. Mo HSW (2007) Primary health care services development programme 2007-2017. Tanzania.
26. Manzi F, Schellenberg J, Hutton G, Wyss K, Mbuya C, et al. (2012) Human resources for health care delivery in Tanzania: A multifaceted problem. Hum Resour Health 10: 3.
27. Kwesigabo G, Mwangu MA, Kakoko DC, Warriner I, Mkony CA, et al. (2012) Tanzania's health system and workforce crisis. J Public Health Policy 33: S35-S44.
28. Wilcox ME, Chong CA, Niven DJ, Rubenfeld GD, Rowan KM, et al. (2013) Do intensivist staffing patterns influence hospital mortality following ICU admission? A systematic review and meta-analyses. Crit Care Med 41: 2253-2274.
29. Wallace DJ, Angus DC, Barnato AE, Kramer AA, Kahn JM (2012) Nighttime intensivist staffing and mortality among critically ill patients. N Engl J Med 366: 2093-2101.
30. (2010) British association of critical care nurses (BACCN) British association of critical care and royal college of nursing (RCN): Standards for nurse staffing in critical care.
31. Maben J, Peccei R, Adams M, Robert G, A Richardson, et al. (2012) Exploring the relationship between patients' experiences of care and the influence of staff motivation, affect and wellbeing. Natl Inst Heal.
32. Jeremy Dawson A (2014) Staff experience and patient outcomes: What do we know? A Report Commissioned by NHS Employers on behalf of NHS England.
33. Cummings GG, MacGregor T, Davey M, Lee H, Wong CA, et al. (2017) Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review. Int J Nurs Stud 47: 363-385.
34. Mcgaughey J, Alderdice F, Fowler R, Kapila A, Mayhew A, et al. (2009) Outreach and early warning systems (EWS) for the prevention of intensive care admission and death of critically ill adult patients on general hospital wards. Cochrane Database Syst Rev 26.
35. Matlakala MC, Botha ADH (2016) Intensive care unit nurse managers' views regarding nurse staffing in their units in South Africa. Intensive Crit Care Nurs 32: 49-57.
36. Beer J De, Brysiewicz P, Bhengu BR (2011) Intensive care nursing in South Africa. Southern African Journal of Critical Care 27: 6-10.
37. Powell-Cope G, Nelson AL, Patterson ES (2008) Patient care technology and safety. Patient Saf Qual: An Evidence-Based Handb Nurses 3: 207-220.
38. Levy FH, Brilli JR, First LR, Hyman D, Kohrt AE, et al. (2011) A new framework for quality partnerships in childrens' hospitals. Pediatrics 127: 1147-1156.
39. Yohannes Kinfu, Mario R Dal Poz, Hugo Mercer DBE (2009) The health worker shortage in Africa: Are enough physicians and nurses being trained? Bull World Heal Organ 87: 225-230.
40. (2004) WHO CO for A: Health Systems Profile United Republic of Tanzania.
41. (2013) Muhimbili university of health and allied sciences: Competency based curriculum for the Bachelor of Science in nursing (BSCN) programme 149-168.
42. Donaldson LJ, Panesar SS, Darzi A (2014) Patient-safety-related hospital deaths in England: Thematic analysis of incidents reported to a national database, 2010-2012. PLoS Med 11: 1-8.
43. Bertrand Guidet, Andreas Valentin, Hans Flaatten (2016) Quality management in intensive care: A practical guide. Cambridge University Press.