



PATIENT-RELATED BARRIERS TO ACHIEVING OPTIMUM CARE AMONG ORTHOPEDIC PATIENTS IN KERUGOYA COUNTY REFERRAL HOSPITAL, KENYA

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ABSTRACT

Background: Globally, musculoskeletal disorders affect approximately 1.71 billion people. It's a worldwide burden causing disability and mortality. Trauma related to road traffic accidents (RTA) and falls is a major contributor to disability, reduced productivity and poor quality of life especially in young and middle-aged populations in developing countries. The developing nations often face barriers of achieving adequate healthcare due to higher prevalence of communicable diseases that pose barriers to healthcare priority setting.

Methods: Census was used to collect data from patients and healthcare workers who were present in the orthopedic units within a period of one month.

Results: Half 37(52.9%) of the patients reported abusing substances with 15(21.4%) using cigarettes, 13(18.6%) using alcohol and 9(12.9%) using both alcohol and cigarettes. About three-quarters 44(62.9%) of the patient had comorbidities with heart problems being the most common with 19(27.1%). Substance abuse was found to have a significant association with the recovery duration ($P = 0.018$). Regression analysis showed that patients who were not abusing substances were 3.4 times more likely to recover within a duration of less than one month compared to those who were abusing substances.

Conclusion: Patient – related factors were key determinants to the recovery duration of orthopedic patients. For health outcomes, the study established that most of the patients recovered within a period of more than a month.

Keywords: Musculoskeletal disorders, orthopedic patients, recovery duration, substance abuse, comorbidities, road traffic accidents

INTRODUCTION

Globally, musculoskeletal disorders affect approximately 1.71 billion people. It's a worldwide burden causing disability and mortality (1). Trauma related to road traffic accidents (RTA) and falls is a major contributor to disability, reduced productivity and poor quality of life especially in young and middle-aged populations in developing countries (2). Mortality associated with orthopedic injury are considerably higher in developing countries which doubles that of the high income countries 53/100,000/annually (3). The developing nations often face barriers of achieving adequate healthcare due to higher prevalence of communicable diseases that pose barriers to healthcare priority setting (4).

A significant percentage of patients in orthopedic units often have co-existing health conditions including diabetes mellitus (DM), obesity and cardiovascular disease (CVD) as the cause or the enabler of orthopedic-related morbidity and mortality. Complications resulting from poorly managed DM especially diabetic foot ulcers have greatly contributed to increasing incidences of non-traumatic amputations (5). CVD including the peripheral vascular disease increases orthopedic morbidity due to precipitating or delaying wound healing through ischemia (6). In addition, orthopedic patients often have social factors like harmful alcohol consumption and cigarette smoking which increase the risks of injuries in addition to delaying the process of wound healing (7). Effective and sustained access to affordable healthcare services is a prerequisite to increase healthcare coverage among the population. However, populations in developing countries often lack access to affordable healthcare services due to poverty and lack of government policies that favor universal healthcare coverage. Populations in developing countries lack health insurance meaning majority incur huge out-of-pocket expenses. This has led to increasing cases of catastrophic health expenditure among the populations involved (8).

In addition, there is a literature gap on barriers in Kirinyaga. Consequently, determining patient related barriers and healthcare facility barriers is of great importance to come up with proper interventions. Hence, this study was conducted to determine patient related and healthcare facility barriers to achieve optimum nursing care and health outcome among orthopedic patients at Kerugoya County Referral Hospital (KCRH), Cental Kenya.

Methods

Study location

This study was conducted at Kerugoya County Referral hospital. The Global Positioning System (GPS) coordinates for the hospital Location are; 0.5048° S, 37.2813° E. The hospital is along Kutus- Kagumo road in Kirinyaga central with a catchment population of approximately 31,820. The hospital is 123.9 km from the capital city, Nairobi and 850m away from the region town, Kerugoya.

Study design and study period

A cross sectional analytical study research was conducted in March 2023.

Source population and study population

The source population of the study was orthopedic patients who receiving orthopedics services in the orthopedic units. Study population was orthopedic patients who were selected using census during the time of study.

Sample size determination

A comprehensive population of patients and healthcare workers who were available during the time of study within a duration of one month were interviewed using questionnaires. The study reported data on 70 orthopedic patients and 30 healthcare workers.

Sampling procedure and technique

Census was used to get seventy orthopedic patients and 30 healthcare workers in orthopedic units during the period of study.

Inclusion and exclusion criteria

Orthopedic patients admitted in orthopedic units and those who come for orthopedic clinics after discharge from KCRH and those referred from other facilities to orthopedic clinics and Healthcare workers who had stayed in orthopedic units for more than six months were included. Critically ill patients with neurological

injury and orthopedic injuries and healthcare workers who had not worked for than 6 months at the orthopedic units were excluded.

Variables

Dependent variables

Health outcome of orthopedic patients

Independent variables

Socioeconomic and demographic factors, inappropriate nutrition, substance abuse, commodities, obesity, decreased nursing capacity, increased workload, high treatment costs, inadequate health infrastructure, decreased healthcare funding and nurse-patient communication barriers.

Data collection tools and procedures

The test-retest method was used to establish the reliability of the data collection tool. Questionnaires were administered to the same study participants twice at different times within a gap period of two weeks for validity. The questionnaire was used to collect socio- demographics and economic data, patient related and health facility barriers for achieving optimum nursing care. The quality of nursing care was assessed using five indicators namely; Time (had adequate time for your care), comfort (keep your comfort), explanations (explain what happen to you), team work (nurse-physician team work) and teachings (teach you how to self-care). Health outcome of the patient was measured using their recovery duration after admission to the hospital. Body mass index was calculated by measuring the weight and height of patients. In triplicate to ensure accuracy. BMI < 18 was considered underweight BMI ≥ 25 was considered overweight.

Data Quality Assurance

Questionnaires were first prepared in English then translated to either Swahili or Kikuyu depending on client level of education and understanding. Training was done to research assistants and supervisors methods of obtaining consent, study objectives, contents of the questionnaire, interviewing technique and BMI measurements techniques. Questionnaires filled by healthcare workers were later scrutinized thoroughly based on existing knowledge to gather information on barriers to achieving optimum nursing care. In general data collection was monitored by checking questionnaires daily for completeness and consistency throughout the period of study.

Data Processing and Analysis

The study employed descriptive and inferential statistics to analyze the data obtained. The data collected was coded and entered in the computer for analysis using Statistical Package for the Social Sciences (SPSS) version 26 for windows. The quantitative data yielded frequency counts and percentages that were presented in tables, bar graphs and bar charts. Chi-square test and regression analysis were used to test the association between the independent and the dependent variable. Bivariate and multivariable logistic regressions were performed and an adjusted odds ratio with 95% confidence intervals was estimated to identify the factors associated with the health outcomes of the patients. Variables with $p < 0.25$ in the bivariate level were fitted to the final multivariable logistic regression to adjust for potential confounders. A P-value < 0.05 was used to declare the statistical significance and the strength of association in all the analyses.

Operational definition of terms

Health outcome: These are changes in health status of an individual that result after specific interventions have been done. In this study was measured by the duration of recovery.

Healthcare systems: Hospital physical facilities, resources which are human resources and materials.

Musculoskeletal disorders: Injuries involving tendons, ligaments, muscles, bones, blood vessels, discs and nerves

Optimum nursing care: Nursing care that meets the safety, reliability and Effectiveness as patients receive care rendered.

Patient-related barriers: Impediments that negatively impact the health outcome of individuals after optimum delivery of services.

Result

About three quarters 54(77.1%) of the patients had access to the medical cover. Notably, almost three-quarters 46(65.7%) of the patients had a national health scheme the National Hospital Insurance Fund (NHIF). Half 37(52.9%) of the patients reported abusing substances with 15(21.4%) using cigarettes, 13(18.6%) using alcohol and 9(12.9%) using both alcohol and cigarettes. About three-quarters 44(62.9%) of the patient had comorbidities with heart problems being the most common with 19(27.1%). Furthermore, half 36(51.4%) of the patients were malnourished as shown by the BMI in Table 1. A Chi-square test was done to establish the association between patients' factors and the health outcome. The Chi-square test between sex and age showed no significant association ($P > 0.05$). However, there was a significant association between the education level of the patient and their recovery duration ($P=0.039$) as illustrated in Table 2. The level of education was further analyzed using logistic regression. The regression revealed that those patients who had primary school education were 5.6 times more likely to recover in more than a month as compared to those patients who had a tertiary level of education as shown in Table 3. A Chi-square test was also carried out to establish the association between some of the individual health factors and health outcomes. Substance abuse was found to have a significant association with the recovery duration ($P = 0.018$). However, there was no significant association between medical cover access, comorbidity, BMI, and recovery duration ($P > 0.05$) as shown in the Table 4.

Table 1: Lifestyle and Health Profile of the Respondents

	N=70	
	N	%
Medical cover access		
No	16	22.9
Yes	54	77.1
If yes, specify the type of cover		
National health scheme	46	65.7
Private	8	11.4
No cover	16	22.9
Substance use		
No	33	47.1
Yes	37	52.9
If yes, Type of substance used (N=37)		
Alcohol	13	35.1
Cigarette	15	40.5
Alcohol and cigarette	9	24.3
Comorbidity		
No	26	37.1
Yes	44	62.9
If yes, Which comorbidity (N=44)		
Heart problems	19	27.2
Bone problems	7	10.0
Metabolic problems	18	25.7
BMI Category		
Malnourished	36	51.4
Normal	34	48.6

Table 2: Association between Demographic Factors and Health Outcome of orthopedic patients at Kerugoya County Referral Hospital

N=70		Recovery duration <1- month n (%)	Recovery duration ≥ 1- month n (%)	χ^2 P value
Sex	Male	15 (21.4)	28 (40.0)	0.894
	Female	9 (12.9)	18 (25.7)	
Age	20-35	5 (7.1)	7 (10.0)	0.805
	36-49	8 (11.4)	18 (25.7)	
	50-69	11 (15.7)	21 ((30.0)	
Education	Primary	3 (4.3)	14 (20.0)	0.039*
	Secondary	9 (12.9)	22 (31.4)	
	Tertiary	12 (17.1)	10 (14.3)	

*Significant at $p \leq 0.05$

Table 3: Association between level of education and recovery duration at Kerugoya County Referral Hospital

		95% Confidence Interval for COR			
Recovery duration category ^a B	P-value	COR	Lower Bound	Upper Bound	
≥ 1 month					
Primary	1.723	0.025	5.600	1.246	25.174
Secondary	1.076	0.065	2.933	0.936	9.196
Tertiary	0 ^b	.	.	.	.

a. The reference category is < 1 month.

b. Base category.

Table 4: Association between Individual Health Factors and Health Outcome at Kerugoya County Referral Hospital

N=70		Recovery duration <1- month n (%)	Recovery duration ≥ 1- month n (%)	χ^2 P value
Medical cover	No	6 (8.6)	10 (14.3)	0.758
	Yes	18 (25.7)	36 (51.4)	
Substance Use	No	16 (22.9)	17 (24.3)	0.018*
	Yes	8 (11.4)	29 (41.4)	
Comorbidity	No	8 (11.4)	18 (25.7)	0.634
	Yes	16 (22.9)	28 (40.0)	
BMI category	Malnourished	13 (18.6)	23 (32.9)	0.741
	Normal	11 (15.7)	23 (32.9)	

*Significant at $p \leq 0.05$

Discussion

Patient-related barriers such as education deficiencies and a lack of medical coverage are some of the hinderances that reduce the utilization of quality health care in health facilities. Good health is integral to the development of a country's social and economic pillars. Notably almost three quarters of the patients had access to national health scheme (NHIF) services. This was in agreement with a study conducted among

orthopedic patients in Zambia, where those without health insurance cover and those residing in rural set ups were less likely to utilize the orthopedic services (Seketi, 2019). Similarly this was in agreement with a study conducted in Kenyatta National Hospital in Kenya (Omondi et al., 2023).

About three-quarters of the patients had comorbidities, with heart problems being the most common. The presence of comorbidities has been found to determine health outcomes, duration of stay, and postoperative complications (Cui et al., 2017; McLeod et al., 2015; Nicholson et al., 2014). This may be due to increased demands for recovery from the multiple diseases in the body.

Substance abuse has been linked with poor health outcomes (ODPHP, 2021). Substance abuse is the major contributor to traumatic injuries, and it's also associated with increased hospital length of stay (Shymon et al., 2020). Smoking is the leading cause of death and disability. Smoking cessation can improve health and quality of life (Centers for Disease Control and Prevention, 2020). People with low socioeconomic status and primary school education were more likely to use tobacco (Centers for Disease Control and Prevention, 2019).

Various scientific studies have found that cigarette smoking and tobacco abuse are factors that affect the recovery of orthopedic patients due to postoperative infections (Nsell et al., 2011; Srensen, 2012; Sorensen et al., 2003). The study findings showed that half of the patients were abusing substances, and most of them were using cigarettes. This conforms with a study conducted in Australia that showed that the rate of substance use was high among the orthopedic patients who were using tobacco (Proude et al., 2006). According to Chukwuani et al. (2006), the level of education was associated with the utilization of health care services. This study's findings found that there was a significant association between education and the recovery duration of the patients. This was contrary to a study conducted in Egypt, which showed there was no significant association between education level and recovery (Rahman et al., 2017).

Conclusion

Patient related factors that influenced health outcome include substance abuse, coexisting comorbidities, level of education, medical insurance and period taken to seek medical assistance. These are key determinants to the recovery duration of orthopedic patients. Therefore, intervention targeting the identified factors are important for the provision of quality care to patients.

Declaration of authors

Ethical approval: Approval was given by kerugoya level 5 hospital and participants were given informed consent to sign before the study was conducted.

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REFERENCES

1. Huzum, B., Puha, B., Necoara, R. M., Gheorghevici, S., Puha, G., Filip, A., ... & Alexa, O. (2021). Biocompatibility assessment of biomaterials used in orthopedic devices: An overview. *Experimental and Therapeutic Medicine*, 22(5), 1315.

2. Agarwal-Harding, K. J., Chokotho, L. C., Mkandawire, N. C., Martin Jr, C., Losina, E., & Katz, J. N. (2019). Risk factors for delayed presentation among patients with musculoskeletal injuries in Malawi. *The Journal of bone and joint surgery. American volume*, 101(10), 920.
3. Joshipura, M., & Gosselin, R. A. (2020). Surgical burden of musculoskeletal conditions in low-and middle-income countries. *World Journal of Surgery*, 44, 1026-1032.
4. James, D., Kurian, N., John, A., Verghese, V. D., & Cherian, V. M. (2021). Impact evaluation and cost-Benefit analysis of remote orthopedic consultation methods in a low-resource health-care setting. *CHRISMED Journal of Health and Research*, 8(3), 169-174.
5. Shabhay, A., Horumpende, P., Shabhay, Z., Mganga, A., Van Baal, J., Msuya, D., ... & Chugulu, S. (2021). Clinical profiles of diabetic foot ulcer patients undergoing major limb amputation at a tertiary care center in North-eastern Tanzania. *BMC surgery*, 21(1), 1-7.
6. Yaman, M., Cürebal, İ., & Soykan, A. (2019). Karesi İlçesinin (Balıkesir) Doğal Ortam Özellikleri. In *Actual Questions and Innovations in Science* (pp. 31-52)
7. Hernigou, J., & Schuind, F. (2019). Tobacco and bone fractures: A review of the facts and issues that every orthopaedic surgeon should know. *Bone & joint research*, 8(6), 255-265.
8. WHO (2018). Global status report on road safety https://www.who.int/violence_injury_prevention/road_safety_status/2018/en

