

Original Article

Socio-Demographic Correlates of Inpatients Cost of Wound Dressing per Acute Care Episode

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Abstract

Background: The cost of wound dressing alone constitutes a major financial burden for successful wound care. This cost is known to be influenced by frequency of wound dressing, length of hospitalization, type and cost of dressing materials, consumables and product used. The thrust of this study was to examine the correlation between patient's socio-demographic characteristics and the cost of wound dressing per acute care episode

Method: A descriptive cross-sectional research design was used. The study was conducted in three Nigerian teaching hospitals reputed for wound care and other traumatic injuries. Study sites included medical, surgical, orthopaedic & plastic wards as well as burn, radio-oncology and neuroscience units. The data were collected via interview administered questionnaire designed based on systematic literature view and researchers previous field experience. Hypothesis was tested by inferential statistic at 0.05 level of significance while ethical approval was received from each of the hospital

Result: Most of the respondents fall between the age group 30-39 years. 63% of the respondents are male while 37% are female. The highest level of education was secondary school. Respondents were mostly artisans and traders. Majority earn less than ₦50000 as monthly income. There was a weak correlation between respondent's age ($r = -0.097$, $p = 0.185 > 0.05$), education ($r = -0.008$, $p = 0.936 > 0.05$), gender ($r = 0.133$, $p = 0.296 > 0.05$), occupation ($r = 0.001$, $p = 0.993 > 0.05$), family size ($r = -0.161$, $p = 0.026 < 0.05$), monthly income ($r = -0.071$, $p = 0.331 > 0.05$), and cost of wound dressing per acute care episode

Conclusion: Finding suggests no significant relationship between patient's socio-demographic characteristics and cost of wound dressing per acute care episode. Therefore, there is an urgent need to include artisans, traders, hawkers, small business owners and other low-income earners in the National Health Insurance Scheme

Key Words: Socio-demographic characteristics, Inpatients, cost of wound dressing, acute care episode, Teaching Hospitals

Introduction

The geometric increase in the cost of wound dressing has been a central theme in most wound studies. Extant studies have attributed the escalating cost of wound dressing to repeated dressing changes, use of modern dressing materials, cost of hospitalization and professional cost. However, there is paucity of data on the influence of social demography such

as patient's age, occupation, income, gender, family size on cost of wound dressing per acute care episode. This is worsened in sub-Saharan Africa where documentation of clinical parameters is noted to be inadequate. Based on this premise, it is the interest of the researchers to examine the socio-demographic correlates of cost of wound dressing per acute care episode in resource limited settings of south west Nigeria

Age

Globally, several studies have associated escalating cost of wound care to patient age. According to Danmusa, Terhile, Nasir et al, (2016); Guest, Fuller, Vowden, (2017); Guest, Fuller & Vowden, (2018); Cheng, Gibb, Graves et al, (2018); Narwade, Saxena, Wasnik et al, (2019), Tulek et al (2016), the rising population of the elderly presenting for wound care has resulted into escalating cost of wound care across the globe. A Nigeria study by Rahman et al in Ogundeji, Akinyemi, Adeyemo et al (2018) revealed that the statistics of patients presenting with wounds in Nigeria health facilities show higher ages from 60 years and above. Similarly, Danmusa et al, (2016) study in Northern Nigeria shows that prevalence of diabetic foot ulcer is common among individual ages 50 and above.

Also, Ilesanmi & Fatiregun in Ogundeji et al, (2018) reported that the overall mean cost of care of inpatients surgical wound is higher for patients who are 40 years and above. The increased cost of wound care associated with advancing age is not unconnected with comorbidities such as diabetes, hypertension as well as overwhelming infections emanating from debilitating body immune system, (2017). This is consistent with Guest et al (2017) retrospective cohort study which revealed that younger patients had acute wound while elderly patients had chronic wounds with more comorbidities

Gender

Research findings often do not report gender differences on rate of healing or type of wound. Also, studies demographic data shows varied sex index of prevalence of wounds across geographical location. For instance, Tan, Tan, Chong et al, (2016) study in Singapore shows a large proportion of female patients (51.1%) while Ogundeji et al, (2018) study in Nigeria shows a large proportion of male patients (64.7%). The differences may be due to firstly, the geographical location cum socio-economic variations between Nigeria and Singapore (2018). Secondly, methodological differences, the Singapore study was retrospective while the

Nigeria study was a cross-sectional study which utilized interviewed administered questionnaire for data collection. Nevertheless, there remains the fact that gender differences of patients with wounds have not been well studied, (2017). Besides, the authors feel that for an indigenous African setting, some male dominated occupations such as factory work, driving and construction work could make the male folks to be at high risk of injuries related wounds that either require hospitalization or treated on out-patients basis (2016)

Education

The educational influence on wound aetiology, care cost and rate of healing is poorly understood. Research studies often do not report effect of educational attainment on causes, ability to pay and length of hospitalization among patients with wounds. Recent studies however associated unemployment and underemployment with poor monthly salary to inability to cope with required healthcare finances. For instance, in South West Nigeria, Odusan, Amoran & Salami, (2017) and Ogundeji et al, (2018) argued that most of the patients with wounds in typical Nigerian teaching hospitals are poorly remunerated despite over 50% have tertiary education (2018) and could not meet the financial requirement of successful wound care

Occupation

Occupation related to the use of machinery, instruments, driving or travelling can pose risk of injuries to the individuals. Studies which examined the aetiology and epidemiological data of wounds have become standard. Most wounds are said to be related to traumatic, underlying clinical condition or surgical procedure (2016). Generally, poor workplace ergonomics can make workers to be at risk of occupational hazards

Family Income

The financial implications of successful wound care in low and middle-income countries where insurance coverage is not well organized is enormous. Several studies have reported catastrophic household expenditure resulting

from unending healthcare finances (Ogundeji et al, 2018; Karimo, Krokeyi, Ekainsai, 2017; Ogundeji, 2017; Cleopatra & Komolafe, 2018). In Nigeria, out of pocket payment remains the highest means of settling healthcare bill with negative effects on family finances (Ogundeji et al, 2018; Ogundeji, 2017, Cleopatra & Komolafe, 2018; Aregbesola, 2017; Aregbesola & Khan, 2018; Raheem, Adewale, Adeneye et al, 2019).

Furthermore, extant studies revealed that most of the patients who are hospitalized in Nigeria hospitals for wound dressing are dependent population and could not finance their wound care bill (Lotz, 2019). Few Nigeria studies have also reported that these given population are either underpaid or are not gainfully employed in that their monthly income could not cater for the family need and hospital bills (Ogundeji et al, 2018; Odusan, Amoran, Salami, 2017)

Family size

The effect of protracted healthcare expenditure on family members could be enormous. Indigenous families in developing countries such as Nigeria could find it difficult to cope with combining wound care expenses with meeting daily family needs like dairy product and other essential food supply.

Sadly, the fund necessary for the up keep of the family is often being substituted for provision of wound dressing materials, lotion, consumables and hospitalization (Aregbesola & Khan, 2018; Oreh, 2017). It is noted that the situation can become worsened where there is large family size and the victim is the family head or the bread winner.

A similar Nigeria study by Ogundeji et al, (2018) reported that 68.3% of the families in their study have family size between five to ten and this have a ripple effect on the family income and healthcare expenses

Materials and Method

The study was based on descriptive cross-sectional research design to explore the effect of patient socio-demographic characteristics on cost of wound dressing per acute care episode in typical Teaching Hospitals South West

Nigeria. The selected hospitals were the University College Hospital (UCH) Ibadan, the National Orthopaedic Hospital Igbobi Lagos (NOHIL) and the Obafemi Awolowo University Teaching Hospital Complex (OAUTHC). The hospitals are reputed for care of patients with traumatic injuries and other health issues nationwide. The study sites were mainly settings where wound dressing is performed which included medical, surgical, orthopaedic & plastic wards as well as burn, radio-oncology and neuroscience units.

The data collection follows a quantitative approach with the use of interview-administered questionnaire to elicit information from the respondents on their socio-demographic characteristics and other wound related variables such as cost of materials and product used. The design of the questionnaire was based on literature review and researchers previous experience on the subject under study. The eligibility criteria were purely patients who were about to be discharged or have spent minimum of four weeks for wound dressing per acute care episode.

The respondents were selected via convenience sampling to allow for the recruitment of all the eligible patients in each ward. The respondents were interviewed in English or Yoruba language depending on the preference of each respondent. Additional data on patients' socio-demographic features were retrieved from the ward electronic record where it exists. Covid-19 protocols were given serious considerations during data collection which involved gloving, masking, distancing and hand washing

The data were analyzed using Statistical Package for Social Sciences (SPSS) software via descriptive and inferential statistic at 0.05 level of significance. The results were presented in bar charts and correlation contingency table. Ethical approval for the conduct of the study was obtained from the Ethical Committee (EC) of each of the hospital while verbal and written consent were also received from the respondents before participating in the study. Ethical principles of voluntariness, autonomy, confidentiality and non-maleficence were upheld

Results

Table 1 shows that there is a weak negative correlation between the age group of patients and cost of wound dressing ($r = -0.097$, $p = 0.185 > 0.05$). There is a weak negative correlation between the patients' highest educational level and cost of wound dressing ($r = -0.008$, $p = 0.936 > 0.05$). Also, there is a weak positive correlation between the gender of the respondents and the cost of wound dressing ($r = 0.133$, $p = 0.296 > 0.05$).

There is a very weak positive correlation between the occupation of respondents and the cost of wound dressing ($r = 0.001$, $p = 0.993 > 0.05$). The table shows that there is a weak negative correlation between the family size of respondents and the cost of wound dressing ($r = -0.161$, $p = 0.026 < 0.05$). Again, there is a weak negative correlation between the monthly income of respondents and the cost of wound dressing ($r = -0.071$, $p = 0.331 > 0.05$).

The figure 1 shows that most of the respondents fall between the age group 30-39 years and the least is 50-59 years.

The figure 2 shows that 63% of the respondents are male and 37% are female.

The figure 3 shows that most of the respondents' highest level of education is secondary school and just few of them have no formal education.

The bar chart 4 shows that about 66 of the respondents are into trading and 65 of them are artisans and only about 14 and 16 respondents are retired and unemployed respectively.

The figure 5 shows that about 100 of the respondents earn less than ₦50,000 and only 6 of the respondents earn more than ₦200,000 as their monthly income.

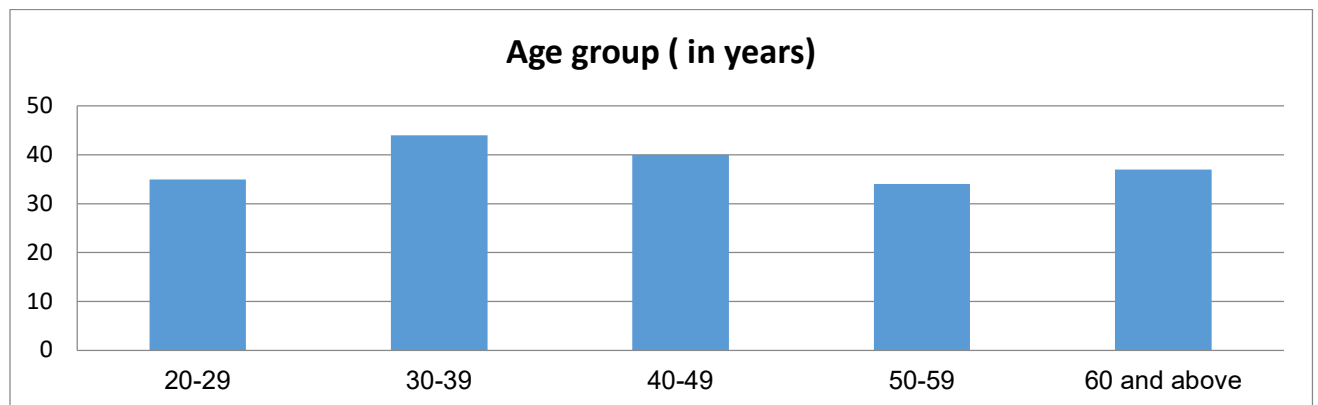


Figure 1: Bar chart showing the age-group of respondents

(Field report)

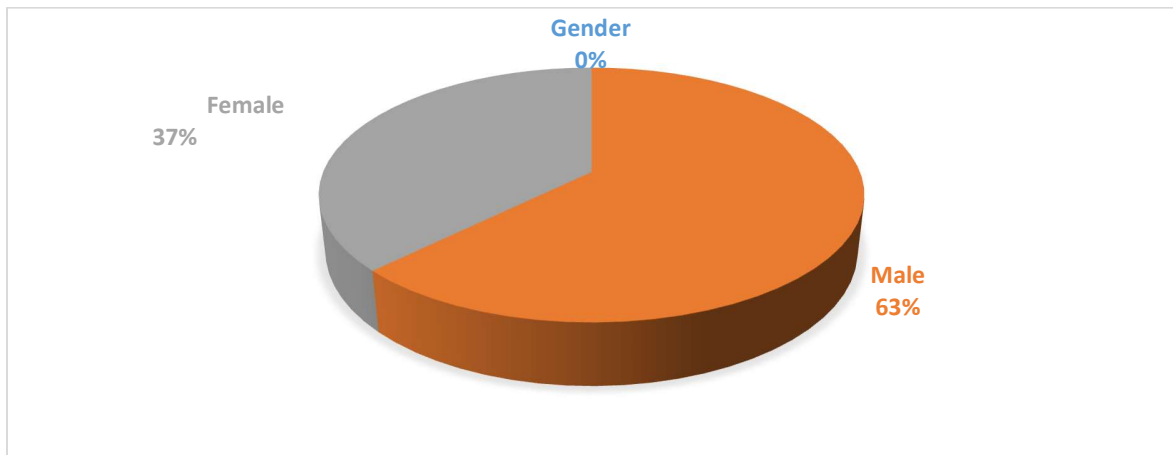


Figure 2: Pie chart showing the gender of respondents

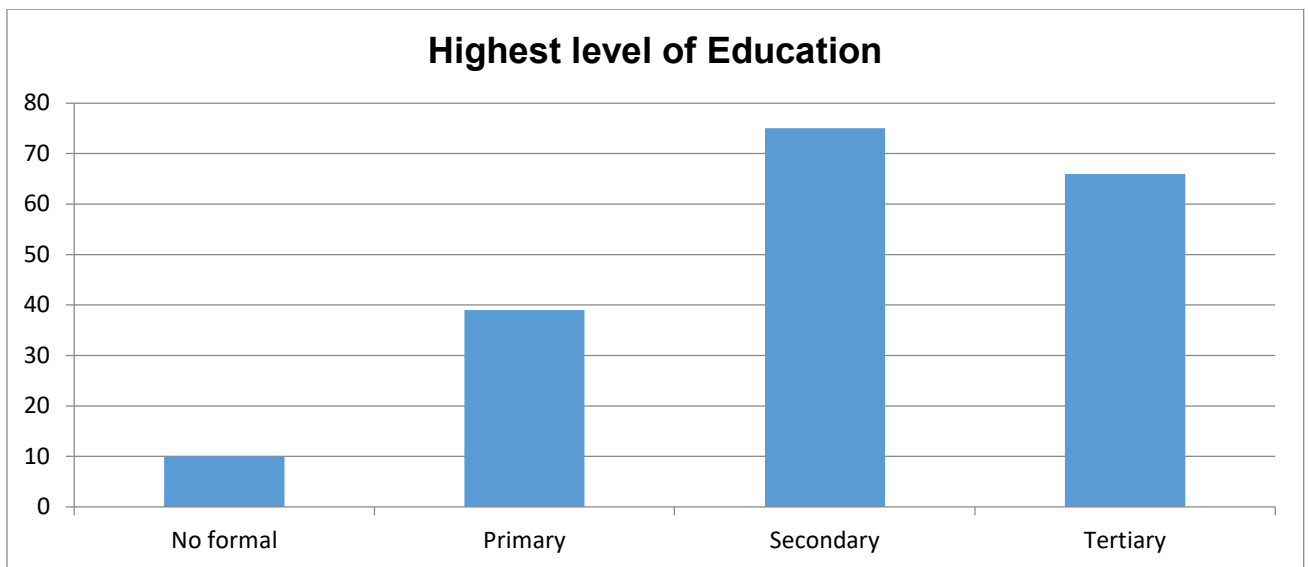


Figure 3: Bar chart showing the highest level of education of respondents (Field report)

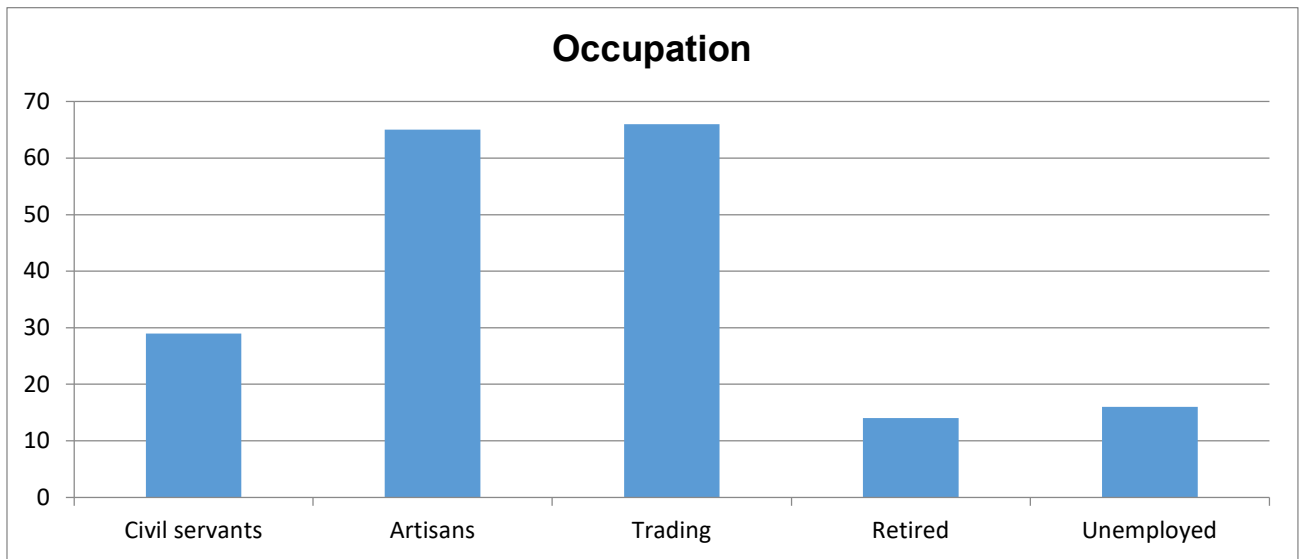


Figure 4: Bar chart showing the occupation of respondents (Field report)

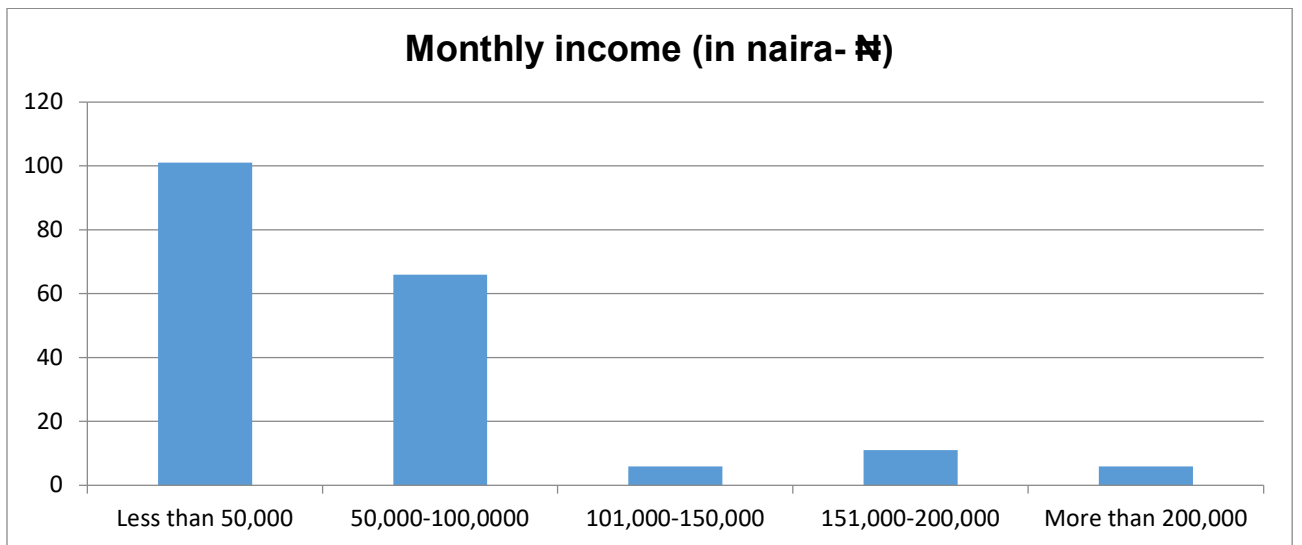


Figure 5: Bar chart showing the monthly income of respondents (Field report)

Table 1: Correlation between patients' socio-demographic characteristics and the cost of wound dressing

Variable	Cost of wound dressing per acute care episode			R	Sig. P
	LOW	MEDIUM	HIGH		
AGE					
20 – 29	34.3	0.6	0.2	-0.097	.185>0.05
30 – 39	43.1	0.7	0.2		
40 – 49	39.2	0.6	0.2		
50 – 59	33.3	0.5	0.2		
60 Above	36.2	0.6	0.2		
HIGHEST LEVEL OF EDUCATION					
No formal Education	9.8	.2	.1	-0.008	0.936>0.05
Primary Education	38.2	.6	.2		
Secondary Education	73.4	1.2	.4		
Tertiary Education	64.6	1.0	.3		
MONTHLY INCOME					
less than 50, 000	98.9	1.6	.5	-0.071	0.331>0.05
50, 000 – 100000	64.6	1.0	.3		
101,000 -150,000	5.9	.1	.0		
151,000 - 200,000	10.8	.2	.1		
more than 200,000	5.9	.1	.0		
GENDER					
Male	116.5	1.9	0.6	0.133	0.296>0.05
Female	69.5	1.1	0.4		
OCCUPATION					
Civil servants	28.4	.5	.2	0.001	0.993>0.005
Artisans	63.6	1.0	.3		
Trading	64.6	1.0	.3		
Retired	13.7	.2	.1		
Unemployed	15.7	.3	.1		
FAMILY SIZE				-0.161	0.026<0.05
Less than 5	49.9	.8	.3		

5 – 10	133.1	2.1	.7
More than 10	2.9	.0	.0

Discussion

The cost of wound dressing is known to be influenced by certain intrinsic and extrinsic variables. The investigator was interested in examining socio-demographic characteristics that may determine the cost of inpatients wound dressing per acute care episode. Particularly, the correlation between patient's age, sex, occupation, monthly income, family size and the cost of wound dressing per acute care episode were examined

Statistical significance shows that there is a weak negative correlation between the age of patients and cost of wound dressing. This means that the cost of wound dressing per acute care episode is not determined by the patient age. This finding is inconsistent with several studies which discriminates the cost of wound dressing based on patients' age. Finding negates Cheng et al, (2018) and Narwade et al, (2019) conclusion that increase in cost of wound dressing is associated with increased population of elderly. Statistical analysis shows that two-third of the study respondents are less than fifty year old, therefore, the author opined that patient wound aetiology, type of wound, frequency of wound dressing, comorbidities including choice of dressing materials and lotion used are more predictors of cost of wound dressing than the advancing age often reported by most studies

Finding shows that there is a weak positive correlation between gender of respondents and the cost of wound dressing. Essentially, studies which examined the gender variation of cost of wound dressing are sparse. However, majority of the patients in this current study were male which is in line with Ogundeji et al, (2018) study which reported about seventy percent male population in a similar study. Finding is also consistent with Danmusa et al, (2016) assertion that male are mostly involved in high risk jobs which may result into wound related diagnoses thereby require continuous dressing

changes and increased cost of dressing per acute care episode. On respondent's educational level, finding also revealed a weak negative correlation between the patient's highest educational level and cost of wound dressing. This suggests that patient level of education does not influence cost of wound dressing and frequency of wound dressing. This finding corroborates Odusan et al, (2017) and Ogundeji et al, (2018) position that most patients lacks financial capacity to finance their wound care despite being educated.

Furthermore, correlation coefficient shows a very weak positive relationship between the occupation of respondents and the cost of wound dressing. This is closely related to the aetiology of the wound as a factor that can modulate the frequency and cost of wound dressing. Certain occupation or job can poses risk of traumatic injury. These jobs may include factory work where heavy duty machines are used including travelling related work. Also, finding revealed that the workforce comprises of mostly artisans and traders and are at risk of diverse traumatic injuries that can necessitate hospital admission. Young Nigerians are seen on the highway hawking or involves in artisanship with the use of sharp or blunt instruments or machines which make them susceptible to workplace injuries. In Nigeria, government job is highly preferred by most citizens from the perspective of job stability, good condition of service and other remunerations. However, very few graduates are employed by the government. This is why entrepreneurship is being promoted among the Nigeria youth. In response, government has organized various socio-economic programmes to wield youth to various artisanship and businesses to boost local production of goods and services in the country. Socio- economic programmes such as N-power, trader monies, farmer monies, conditional cash transfer were organized in Nigeria

Finding shows a weak negative correlation between the respondents' monthly income and the cost of wound dressing. The patient earn little that cannot meet the healthcare finances of providing wound dressing. Study revealed that more than fifty percent of the respondents earn less than ₦50000 per month. This finding is in line with Odusan et al, (2017) and Ogundeji et al, (2018) which posited that majority of the patients hospitalized for wound related diagnoses are underpaid or underemployed and could not cope with medical and family finances. The ability to pay for wound service, materials and product in not proportionate to the patients' income. The cost is applicable to patients of varied socio-economic class.

Again, finding suggests a weak negative correlation between respondents' family size and the cost of wound dressing. In essence, finding reveal that most of the respondents have between five to ten family sizes. Large family size is typical of indigenous African families however, this is thought to be changing among elites. Interestingly, despite the purported educational level of the studied population, it remains unclear why most still engaged in large family size. This practice of large family size could be linked to ethno-religion centrism on the African continent. Significantly, large family size has impeded on the ability of the families to pay for medical care. This finding is again similar to Ogundeji et al, (2018) which reported that about seventy percent of the respondents have family size from five to ten with a ripple effect on the ability of the family to finance the medical bill. This situation can become worsened where the hospitalized patient is the family bread winner and unless health insurance scheme is well organized, healthcare finances will continue to pose a significant burden to individual across ages, gender, occupation, income and family size

The study was conducted in South Western geopolitical zone of Nigeria and inferences is not scientifically applicable to all patients hospitalized in all Nigerian Teaching Hospitals. This is a limitation, however, the authors opined that similar result may be obtainable in other Nigeria geo-political zones. Another limitation

is related to unwillingness of some individuals in stating the number of their children or family members. A congruent Yoruba mythology of South West Nigeria inclined that someone is not supposed to count or ask from another the number of her children. This cultural issue was nipped simply because the researcher is from the stock and understand the cultural implication and expectation to elicit such information from respondents

Conclusion: The study examined the correlation between the patient socio-demographic characteristics and cost of wound dressing. Generally, finding consistently reveal no significant correlation between patient's age, gender, occupation, monthly income, family size and the cost of wound dressing. It is worthy of note that many families have large family size between five and ten. In addition, finding also revealed that majority were low income earners and likely unable to cope with the financial implication of continual wound dressing. It is recommended that Nigeria government should improve access to public health insurance scheme among the indigenous population to ensure social justice and improvement in quality of life.

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