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Factors Contributing to Medical Errors in Healthcare Facilities in Nigeria: A Survey of Healthcare Stakeholder's Perspectives

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Abstract: The safety and survival of patients in healthcare facilities is among the key priorities of national healthcare system. This noble priority is undermined by the increasing rates of medical errors in the healthcare facilities. This study aimed to identify the factors contributing to medical errors in healthcare facilities in Nigeria. The study utilized a descriptive research design. The sample for the study consisted of 1200 healthcare stakeholders selected from the six geopolitical zones of Nigeria. The six geopolitical zones constitute six clusters (cluster sampling techniques). Simple random technique by balloting was used to select four healthcare facilities from each of the sampled geopolitical zones. This resulted to 24 healthcare facilities. A total of 50 healthcare stakeholders were selected from each of the 24 healthcare facilities using simple random technique. Overall, a total of 1,200 healthcare stakeholders were used for the study. The study showed that majority of the healthcare stakeholders were females (61.7%) were between 31-50 years (46%) had degree as their highest educational qualifications (54.1%), married (64.2%) and were healthcare providers (47%). Available data also indicated that the factors contributing to medical errors in healthcare facilities in Nigeria were: long working hours (82.5%), personal attitude (81.7%), quackery and ignorance (79.2%) leadership style and management (77.5%) number of patients/type of illness (75.8%) and excess workload (70.8%), respectively. Medical errors in healthcare facilities in Nigeria are influenced by some factors such as: long working hours personal attitude quackery and ignorance leadership style and management number of patients/type of illness and excess workload, respectively. The understanding of these factors would be crucial in reducing mortality and morbidity rates accruing from the errors and ensuring patient safety.

Key words: Medical errors, factors, healthcare facilities, survey, healthcare stakeholders, Nigeria

INTRODUCTION

Worldwide, evidence of substantial rates of medical errors in hospitals abound (Brennan *et al*., 1991a, b; Wilson *et al*., 1995; Gawande *et al*., 1999; Thomas and Brennan, 2001). Medical error is among the pressing heath challenges in Nigerian healthcare system that requires critical intervention. As a result, it often present a wider spectrum of indications ranging from misdiagnosis, wrong decisions and treatment method, abandonment of patients, prescription errors, medical or surgical complications all of which may result in increased morbidity, permanent injury or death (Chukwuneke, 2015). According to Donaldson, the frequently encountered medical errors throughout the world occur in approximately 5-15% of all hospital admission. In Turkey, studies indicate that the frequency of encountering medical errors (making the error or witnessing the error) ranged from 20-69% (Asti and Kivanc, 2003; Filiz, 2008; Gunes *et al*., 2014). The situation in Nigeria is not quite different (Anonymous, 2017) and thus, demonstrating that medical error in practice is not exclusive to developing countries alone but also occurs even in the most developed countries with high technology treatment options and standard of care (Fenn *et al*., 1994, 2000). In application, medical errors occur when a healthcare professional or clinician chooses an inappropriate method of care or improperly executes an appropriate method of care (Zhang *et al*., 2002). This suggests that the rates of the medical errors can be reduced or thoroughly eliminated if the contributory factors are properly identified and addressed.

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The increasing risks of medical errors in healthcare facilities has been attributed to variations in training, experience and inability of healthcare providers to acknowledge the prevalence and seriousness of the errors (Kelly and Lenarz, 1991; Neale *et al*., 2001; Henneman, 2007). Studies further attributed the risks to: increasing specialization of senior staff (Rhodes *et al*., 1999) insufficient input by trained staff in the ongoing care of patients inadequate numbers of junior staff who are insufficiently trained and supervised (Griffith *et al*., 1997) poor organization of ward work and inadequate liaison between professional staff within hospitals and sloppy discharge procedures (Cochrane *et al*., 1992; Wellingvorough, 1995; Houghton *et al*., 1996) as well as attitude. Surprisingly, with the ample understanding of these highlights, the rates of the errors are still on the increase especially in Nigeria. Convincingly, it is reported that over 90% of deaths recorded in Nigerian hospitals are due to poor attitude of health workers (Anonymous, 2017). In a comprehensive study by Chukwuneke (2015), it was indicated that some medical errors are traceable to ignorance. Remarkably, the resultant effects of medical errors in healthcare facilities are felt on people's life, patient safety and resources. Based on available statistics, about 400 people die or are seriously injured each year due to medical errors while approximately 10,000 people experience serious adverse reactions to drugs as well as high hospital-acquired infection costs (DoH., 2000). These represent significant evidence of increasing rates of medical errors in the Nigerian healthcare facilities in the last few decades.

Despite these evidences, so far regarding the negative effects of medical errors on people's life, patient safety and resources (DoH., 2000; Chukwuneke, 2015; Anonymous, 2017), studies observe that errors occurring in hospitals were reported inadequately or not reported at all (Parish, 2003; Yilmaz, 2009; Akin *et al*., 2010; Tansuyer, 2010; Istanbullu *et al*., 2012; Liu *et al*., 2013; Gunes *et al*., 2014; Hajibabaee *et al*., 2014). Indeed, the error reporting rates in hospitals are quite lower (Filiz, 2008; Karaca and Arslan, 2014; Anonymous, 2017). A study by Martowirono *et al*. (2012) showed that participants had negative attitudes concerning reporting errors. This personal disposition makes medical error a very disturbing health issue with increasing daily occurrence, especially, in public health sectors (Iberiyenari, 2014). In attempt to combat the issue of medical errors in hospitals, the Nigerian government came up with some strategies which led to the formation of the Nigerian Medical and Dental Council-NMDC (Chukwuneke, 2015). The goal of NMDC is to ensuring patient safety effective healthcare services delivery and to protect members of the public by ensuring that healthcare providers as well as care are properly qualified to render professional services to patients with optimum competence and diligence and also to observe at all times high moral and ethical standards while attending to the patients (Chukwuneke, 2015). Regrettably, the steady increasing rate of medical errors in hospitals placed doubt on the effectiveness of the above remarkable efforts.

Although, similar situations abound elsewhere (Asti and Kivanc, 2003; Cebeci *et al*., 2010; Filiz, 2008; Gunes *et al*., 2014), yet, little is known about the factors contributing to medical errors in many hospitals. Recently, research indicates that the rate of medical errors in hospitals is disturbing (Iberiyenari, 2014) and the quality of healthcare system in Nigerian has also been described to be unsatisfactory (Adeyemo, 2005). Ideally, the occurrence of medical errors in healthcare facilities should be <5% worldwide. To our knowledge, no study has identified the factors contributing to medical errors in healthcare facilities in Nigerian. This study aims to identify the factors contributing to medical errors in healthcare facilities in Nigeria. It is our noble expectation that the outcome of this study would expose these factors associated with the current increasing rates of medical errors in healthcare facilities in Nigeria.

MATERIALS AND METHODS

Design and sampling procedure: The study utilized a descriptive research design. The sample for the study consisted of 1200 healthcare stakeholders selected from the six geopolitical zones of Nigeria (i.e., North-Central, North-East, North-West, South-East, South-South and South-West). The six geopolitical zones in Nigeria is the division of the country into six zones which consist of states with similar cultures, history, background and close territories. The six geopolitical zones constitute six clusters (cluster sampling techniques). Simple random technique by balloting was used to select four healthcare facilities from each of the sampled geopolitical zones. This resulted to 24 healthcare facilities. A total of 50 healthcare stakeholders were selected from each of the 24 healthcare facilities using simple random technique. Overall, a total of 1,200 healthcare stakeholders were used for the study (Table 1).

Ethical statement: This study was conducted according to the principles of the Declaration by Helsinki (2013). The ethical approval for conducting this study was obtained from the Research and Review Committee, Federal Ministry of Health, Federal Capital Territory, Abuja, Nigeria (Ethical approval code: FMH/FCT.831). The

participants were informed that participation in the study was completely voluntary and that they can withdraw at their own will. Confidentiality of the participants was protected. No money was given to the participants for participating.

Instrument for data collection: The researcher's administered questionnaire designed based on extensive literature review was used for data collection for the study. The questionnaire "Medical Errors in Healthcare Facilities Questionnaire (MEHFQ)" which can be completed in approximately 20 min was composed of two parts-A and B. Part A elicited information on sample characteristics while part B generated data on the factors contributing to medical errors in healthcare facilities in Nigeria. These two parts (A and B) were bundled into one study package for the convenience of the participants. Reliability testing indicated that the questionnaire had a strong internal consistency (Cronbach's α = 0.85). The questions were designed using English language and allowing responses from the participants without any bias.

Data collection and analysis: Prior to the administration of the questionnaire, informed consent of the healthcare stakeholders was duly obtained. The participants who agreed to participate received a questionnaire package which included a cover letter containing summary of the study, the participant's right and the researcher's contact information. In the cover letter, potential participants were requested to complete the questionnaire and return to the researchers on the spot. This method of distribution of the questionnaire was helpful in recording a complete return rate. Only those who consented to participate in the study were included and used. The returned copies of the questionnaire were checked for completeness of responses and were coded into statistical software (Statistical Package for Social Science -SPSS) for analysis. The descriptive statistics involving frequency and percentages was used to establish the factors contributing to medical errors in healthcare facilities in Nigeria.

RESULTS AND DISCUSSION

A total of 1,200 healthcare stakeholders were surveyed. Data in Table 1 shows the sample characteristics. With respect to gender, the study showed that majority of the healthcare stakeholders were females (61.7%) while the males were fewer (38.3%). About 35% of the respondents were below 30 years of age by birth while approximately 46% fall within the ages of 31-50. Only 19.2% were 51 years and above. Of all the respondents, only 16.7% possessed FSLC as highest educational qualification while about 29.2 and 54.1% had WASSC/NECO and degree as their highest educational qualifications, respectively. The marital status of the healthcare stakeholders varied greatly. Thus, majority were married (64.2%) while only 2.5% were divorced. About 19.1% and 14.2 were single and widowed, respectively. Approximately 47% of the respondents were healthcare providers. Others include policy-makers (15.8%) managers (12.5%) and payers (25%), respectively (Table 1).

Table 1: Sample characteristics (n = 1200)

Variable	F-values	Percentage
Gender		
Male	460	38.3
Female	740	61.7
Total	1200	100
Age by birth		
Below 30	420	35.0
31-50	550	45.8
51+	230	19.2
Total	1200	100
Highest educational qualification		
FSLC	200	16.7
WASSC/NECO	350	29.2
Degree	650	54.1
Total	1200	100
Marital status		
Single	230	19.1
Married	770	64.2
Divorced	30	2.5
Widowed	170	14.2
Total	1200	100
Specialization		
Healthcare provider	560	46.7
Policy-maker	190	15.8
Manager	150	12.5
Payer/patient	300	25.0
Total	1200	100

Results on the factors contributing to medical errors in healthcare facilities in Nigeria indicated that 82.5% was long working hours. This was closely followed by personal attitude (81.7%) quackery and ignorance (79.2%) leadership style and management (77.5%) number of patients and type of illness (75.8%) and excess workload (70.8%), respectively. Others include lack of supervision (40%) educational status (28.3%) lack of interprofessionalism (26.7%) and inadequacy of resources (20.0%), respectively (Table 2).

This descriptive survey has demonstrated that medical errors in healthcare facilities are influenced by some factors. The sample characteristics were clearly presented. The study showed that most of the healthcare stakeholders surveyed were within the ages of 31-50 years by birth females married and highly educated. Some obvious implications are remarkable with this result. For instance, the healthcare stakeholders of this age bracket have wide experiences regarding medical errors in healthcare facilities, especially, the females who might

Table 2: Factors contributing to medical errors in healthcare facilities (n = 1200)

	Yes		No	
Items	F-values	%	F-values	%
Personal attitude	980	81.7	220	18.3
Excess workload	850	70.8	350	29.2
Lack of interprofessionalism	320	26.7	880	73.3
Quackery/Ignorance	950	79.2	250	20.8
Inadequacy of resources	240	20.0	960	80.0
Leadership style and management	930	77.5	270	22.5
Number of patients and type of illness	910	75.8	290	24.2
Educational status	340	28.3	860	71.7
Long working hours	990	82.5	210	17.5
Lack of supervision	480	40.0	720	60.0
Percentage average	699	58.3	501	41.7

have had good number of child births and so could play vital roles in providing valid information regarding the phenomenon. Married people usually access healthcare facilities, especially, during family planning, pregnancy, counseling, immunization, surgery, among others. The experiences in marriage and increased access to the services of healthcare professionals might have broaden their understanding of the factors associated with increasing rates of medical errors in healthcare facilities. The impressive educational qualifications of the participants might have also played significant roles in having a clear description of medical errors as well as the associated contributing factors. Similarity, existed with other scholars who found information (Bates *et al*., 1994) and decision-support systems (Bates *et al*., 1993; Lesar *et al*., 1997) as well as improved methods for ordering, transcribing, dispensing and administering medications (Classen *et al*., 1991; Bates *et al*., 1995) as useful tools in reducing adverse events in hospitals.

The present study found that: long working hours personal attitude quackery and ignorance leadership style and management number of patients/type of illness and excess workload were the contributing factors to medical errors in healthcare facilities in Nigeria. This result is quite encouraging with regards to evidence of substantial rates of adverse events in hospitals (Brennan *et al*., 1991; Wilson *et al*., 1995; Gawande *et al*., 1999; Thomas and Brennan, 2001). Greater concern was shown on lack of knowledge and personal attitude as contributing factors to medical errors in hospitals. This aligns with Chukwuneke (2015) who noted that some medical errors are traceable to ignorance. Other researchers demonstrated huge similarity with the present result (Ehsani *et al*., 2013; Gunes *et al*., 2014; Lan, 2014; Johnson and Thomas, 2013; Tansuyer, 2010). While a growing body of researches attributed the increasing risks of medical errors to variations in training, experience and inability healthcare providers to acknowledge the prevalence and seriousness of medical errors (Kelly and Lenarz, 1995; Neale *et al*., 2001; Henneman, 2007), others focused on increasing specialization of senior staff (Rhodes *et al*., 1999) insufficient input by trained staff in the ongoing care of patients inadequate numbers of junior staff who are insufficiently trained and supervised (Griffith *et al*., 1997) poor organization of ward work and inadequate liaison between professional staff within hospitals and sloppy discharge procedures (Cochrane *et al*., 1992; Wellingborough, 1995; Houghton *et al*., 1996). The participant's indication of leadership style as a contributing factor was not surprising. This is because the leader's personality such as personal motivation, enthusiasm, intelligence, conscientiousness, self-confidence, skill in dealing with people and capacity to motivate others are crucial to leadership style and management in organization (Osland *et al*., 2000; Glickman *et al*., 2007).

The variations in the identified contributing factors to medical errors in hospitals as highlighted by various scholars in line with the present findings are clear indications that safety culture varies among healthcare professionals. A safety culture reflects the shared beliefs, perceptions, value and attitudes of professionals towards safety (THF., 2011). Since, personal attitude was among the key contributing factors to medical errors, the present study suggests that assessing personal attitude before applying initiatives regarding patient safety and medical errors in healthcare facilities should be critically considered. As a matter of critical value, evidence abounds that healthcare providers offer services differently because of the variations in individual factors (e.g., experience, individual abilities and personalities) (Mosadeghrad, 2012). Therefore, the need for primary evaluation of healthcare professional's attitudes toward medical errors and improvement strategies becomes indispensible (Gulec and SerenIntepeler, 2013; THF., 2011; Tak, 2010). In most developed countries there are reliable methods of documenting cases which enable the health care system checkmate the rate of occurrence through sanctioning and litigation against the offenders (Mihai *et al*., 2009). The present study recommends that such method should be adopted in Nigerian healthcare system for appropriate checkmating of occurrence.

The strength of the present study lies in its chosen research methodology. However, there are some obvious limitations that need to be addressed. First, this study was a surface survey adopting descriptive statistics of quantitative description. There is need to conduct an in-depth qualitative research study on this phenomenon adopting different designs such as Interpretative Phenomenological Analysis (IPA). This no doubt, would

provide the respondents with the ample opportunity to share experiences and define the factors. Secondly, the present study focused on healthcare stakeholders in healthcare facilities in Nigeria. The result of this study may not be generalized or adopted in other countries. Hence, future studies are recommended to identify factors contributing to medical errors in healthcare facilities in countries order than Nigeria. This is very essential because there is indication that safety culture and medical regulations vary based on location, countries and type of healthcare facility.

CONCLUSION

Medical errors in healthcare facilities in Nigeria are influenced by some factors such as: long working hours personal attitude quackery and ignorance leadership style and management number of patients/type of illness and excess workload, respectively. The understanding of these factors would be crucial in reducing mortality and morbidity rates accruing from the errors and ensuring patient safety.

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