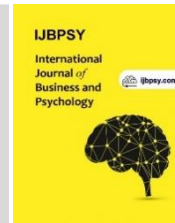


**International Journal of Business and Psychology****Vol.2 Issue 1****A study on patient satisfaction with quality of healthcare services in private hospitals located in Khartoum**Mustafa Lina<sup>1</sup>Dikeocha Ifeoma Julieth<sup>2</sup><sup>1</sup> *Faculty of Business Administration, University of Cyberjaya, Persiaran Bestari 63000 Cyberjaya, Selangor Darul Ehsan, Malaysia.*<sup>2</sup> *Faculty of Medicine, University of Cyberjaya, Persiaran Bestari 63000 Cyberjaya, Selangor Darul Ehsan, Malaysia.**Corresponding author Email: lilianmustafa95@gmail.com***Abstract**

This study evaluated how different demographic variables and purpose of visiting hospital can shape the overall perception of health-care service quality and satisfaction among inpatients admitted in private hospitals. A survey of inpatients using a questionnaire was translated to Arabic. The data were collected from 395 inpatients from 5 private hospitals located in Khartoum – Sudan. The results indicate that nursing staff and hospital pharmacy is significant predictor of in-patient satisfaction. The feasibility, reliability and validity of the instrument that measures major technical and non-technical dimensions of quality of healthcare services were established in the context of a developing country.

**Key Words:** Service quality, Patient satisfaction, Healthcare in Sudan, Private hospital

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## INTRODUCTION

The service industry plays an important role in every economy. In emerging countries, it has become one of the fastest growing sectors (Nguyen et al., 2014; Zaim, Bayyurt, & Zaim, 2010). However not much of research has been done to measure the quality of healthcare service industry and patient satisfaction. For a customer to be satisfied with the quality of a service offered at any time, the customer needs to have a good experience from partaking in said service (Kim, Amezcua, Utterback, & Parsons, 2008). The world health organization defines patient satisfaction as the relationship between perceived requirements, expectations and experiences of patients. From other research there has been no clear difference between patient perceptions and patient satisfaction of the quality of care provided to the patient. However, some research has been done regarding patient satisfaction and perceptions by considering them as having the same meaning otherwise some maintained it as different concepts (NATH & Agrawal, 2015).

It is widely agreed that measuring patient satisfaction is a useful tool for determining the effectiveness of healthcare delivery methods and the quality of the medical care provided. However, research has shown both patients and healthcare provider have to participate in provision of good health service as well as good and conducive environment which is comfortable, and clean to receive medical care (Al-Abri & Al-Balushi, 2014).

The concept of patient satisfaction gained wide momentum in studies as an essential part of improving quality of care and services in the healthcare organization. However, this hasn't eradicated poor customer service which decreases patient satisfaction due to inefficiency of health professionals (Girma, Gong, & Görg, 2008). The main focus in healthcare service is how to satisfy patient needs and this requires healthcare providers to be more responsive toward their patients, by providing both the technical and functional aspects of quality care. The healthcare provider; doctors, pharmacists, nurses, and medical laboratory technologists perform the main technical and functional aspects of quality care (trust, responsiveness and communication). Therefore, patients need care and support that is carefully coordinated, involving several members of the multidisciplinary team of providers in the hospital setting (Bodenheimer, Chen, & Bennett, 2009).

In Sudan, people of distinct social classes receive therapy from healthcare suppliers such as the government, private and military hospitals for various reasons; financial conditions, health expertise and socio-demographic determinants. Evidence of studies done in Khartoum state hospitals in Sudan showed that the level of inpatient satisfaction as regards admission procedure was high, and in terms of communication such as how doctors explained the diagnosis, satisfaction was good. In the public primary healthcare facilities, long waiting times and poor waiting areas and the physical environment of the facilities were the main reasons for dissatisfaction (Hussien, Abusalih, & Hussein, 2016; Lin & Kelly, 1995).

This study was developed due to the fact that there are few studies which focus on patient (in-patient and out-patient) satisfaction on the private healthcare system in Khartoum, Sudan. This research aims to measure relationship between technical and non-technical factors that determine the healthcare quality and patient satisfaction as well as understand how different demographics and the purpose of visit to the hospital can shape the overall perception of the patient towards service quality. Furthermore, the study aims to recommend solutions to improve healthcare service quality in private hospitals in Khartoum.

The outcomes of this study are useful to the hospital management and to determine the factors that affect healthcare service quality and how they are related to patient satisfaction. This research also makes significant theoretical contributions to the comprehension of the satisfaction concept through its level of expectation and perception. The information gathered from this study will be useful for private hospitals in Khartoum to understand patient's satisfaction and provide

better healthcare service quality.

## **LITERATURE REVIEW**

### **Healthcare in Sudan**

The Republic of the Sudan located in north-east of Africa and is considered to be a lower-middle income country. The country has a healthcare system with many drawbacks mainly due to economic and managerial reasons followed by prolonged political instability and sanctions. In general, the political, economic and cultural status reflect the status of healthcare service. According to World Health Organization the healthcare both for profit and not for profit sector have expanded rapidly over the past two decades. However, there has been more increase in private “for profit” health sector which currently provides most of the curative care in Sudan’s capital Khartoum (Organization, 2006).

Most of the private health facilities are running in Khartoum and the Aljazeera states. On the whole, the private health sector makes up 38% of total hospitals, 6% of bed capacity and 31% of X-ray units in the country (Sudan Federal Ministry of Health, 2007). The economic instability in Sudan led to a reduction of the financing for healthcare sector, Sudanese total healthcare sector expenditure was 5.4-8.5% for year 2000 and 8.4% for the year of 2015(Ebrahim, Battilana, & Mair, 2014).

### **Healthcare service quality**

There is a growing interest to monitor the quality of health care service which patients get when they visit hospitals. As the pressure to measure quality increases, patient-based medical care assessments are becoming progressively crucial. Despite of its significant connection to profit, cost savings and market share, service quality has become an important matter. There is growing consensus that patient satisfaction is a significant measure of quality of health care and many hospitals are seeking methods to change the delivery of care through quality improvement projects that increase the quality of their health care service as well as patient satisfaction (Al-Damen, 2017). The Institute of Medicine (IOM) recommends that the hospital healthcare system should be safe, reduce harm to the patients, be equitable, provide equal care to all patients regardless of background and status, provide efficient and timely service which limits waste of time as well as resources, provide a patient centered service that is respectful to the patient beliefs and cultures with good result. In addition, quality healthcare is described as "constantly delighting the patient by delivering effective, and efficient healthcare facilities in accordance with the recent clinical guidelines and norms that fulfill the requirements of the patient and satisfy the provider"(Mosadeghrad, 2014).

Healthcare service quality as “the application of medical science and technology in a manner that maximizes its benefit to health without correspondingly increasing the risk. The dimensions that investigated in his measurement is: acceptability, optimality, efficiency, effectiveness, legitimacy and equity. Three quality elements are distinguished: 1) technical quality, 2) interpersonal quality, 3) facilities. Technical quality is related to the efficacy of care in making health gains achievable. Interpersonal quality relates to the degree to which patient needs and preferences are accommodated. Facilities include characteristics such as convenience of the physical environment and characteristics of service provision organization (Donabedian, 1988).

SERVQUAL is one of the tools developed to measure service quality and it is a common tool in research for the measurement of the quality of services received by patients. SERVQUAL is the main tool to measure and assess patient’s perspective toward stakeholder, and it measures patient preference by using five dimensions:

1. Assurance; describe the skills and knowledge of employee and their ability to show commitment

and confidence.

2. Reliability; talks about how to deliver the expected service with accuracy
3. Tangible; talks about viability of equipment and physical facilities
4. Responsiveness; provide care and help customers and provide instant services
5. Empathy; ability to take care of customer. (Qin & Prybutok, 2009)

22 performance scale and the five dimension that made SERVQUAL to measure service quality and consumer satisfaction by using SERVPERF model has been proposed. The main objective of SERVQUAL is to measure perceived service quality while SERVPERF is model using quality items to measure service quality. Healthcare professionals deliver services differently as variables such as experience, individual skills, and attitudes vary (Mosadeghrad, 2012, 2014)

### **Patient satisfaction**

The quality of health care provided to a patient has the highest impact on patient satisfaction. Several authors in their studies expressed their opinion that the quality of health services indicator has a strong and positive impact on a patient satisfaction level as well as an indicator of the quality of service and efficiency of the health service providers (Batbaatar, Dorjdagva, Luvsannyam, Savino, & Amenta, 2017; Lankarani et al., 2016). Patient satisfaction can guide to patient trust in a health care service provider and will affect positive patient behavior such as recommending it to others. The theory of patient satisfaction is multidimensional and represents the perceptions and desires of patients relative to their actual care (Naidu, 2009). Researchers point out that patient satisfaction is an emotionally impaired mental assessment of the service and is therefore subjective to the perception of the person. It is also accepted that clear evidence exists across environments that interpersonal relationships and their associated care dimensions are the most significant determinants of satisfaction. What is accepted is that satisfaction has become an endpoint of research results and product benchmarking. Therefore, patient satisfaction was seen as part of the quality of health outcomes, which also includes the clinical outcomes, economic measures and quality of life related to health of the patient (Kalaja, Myshketa, & Scalera, 2016; Widayati, Tamtomo, & Adriani, 2018). In general, the level of satisfaction differs from patient to another. For example, healthy people appear to be more comfortable when they obtain general information on health services and is more willing to follow physician instructions and prescriptions.; on the opposite, when they are active in the decision-making process, people with chronic problems may be more satisfied.

### **Determinants of patient satisfaction**

#### ***Experience with doctors***

Experience with doctors is the most important factor to measure and determine perceived healthcare service quality, in the world of medical science, the fundamental principle that defines the well-being of patients is the outcome of consultation sessions with general practitioners or specialist physicians. Meetings between doctor and patients should include services and ambience like every other service meeting session and therefore patients treated by doctors undergo the same behavioral impressions as consumers in all service meetings. The medical provider must adopt reliable patient rating and accurate assessment to enhance health service quality. However, due to the lack of assessment and effective resources that are consistent with the peculiarities of healthcare, the health sector may not sufficiently capture the perspectives of patients on quality of service provided by the doctors. In addition, for a higher level of success in patient satisfaction in the hospitals, physicians need to communicate properly and empathetically with patients and that can lead to willingness to follow prescribed treatment. Evidence from study conducted in Jeddah primary health services revealed that communication skills were the most important patient satisfaction-determining factor when measured (Al-Damen, 2017).

### **Experience with Hospital Administration**

The perceptions of patients about the quality of health care affect their preferences in seeking medical services. If health care sectors cannot be trusted to provide optimum quality in service delivery from the moment a patient steps into a hospital waiting room, while taking the patients information till they see a doctor, these will create a positive impression of the hospital administration thus increasing patient satisfaction. Patients need to stay in hospital smoothly and without delay, from admission to discharge. The hospital administration policies and services contribute to the feeling of satisfaction or dissatisfaction the patients get when receiving healthcare. Provision of premium service quality empowers hospital administrators to promote the hospital and increase a practical competitive as well as favorable position against other healthcare providers. (Al-Abri & Al-Balushi, 2014; Andaleeb, 2001).

### **Physical environment**

The general hospital surroundings as well as ward environment, cleanliness, ambience, lightening and other factors, play a key role in promoting the treatment and recovery and help patients to feel confident about the rest of the care they provided. The health sector and hospital board should be committed to continuous evaluation of the service quality not only in order to determine which aspects of service need to be changed, but also in order to become aware of potential hazards and disadvantages of poor physical environment in the hospital (Webb, 2007).

### **Nursing staff**

It is critical for patients to be treated with respect and dignity. Research from the United States found that patients' perceptions of disrespect in healthcare settings may affect whether they followed advice or delayed seeking care afterwards. There is so many problems related to the action of staff such as: failing to inform patient, lack of information and clear respond for their questions and failing to provide appropriate prophylaxis, the nursing staff should be aware and be able to understand patient needs. This improves the overall experience of patients in the hospital (Merkouris, Ifantopoulos, Lanara, & Lemonidou, 1999).

### **Laboratory and x-ray**

During staying in hospital, patient may require to interact with laboratory and x-ray technician for best treatment and diagnostic, to assess their service quality laboratory technician need to come with the best service to the patient by introducing themselves, explain procedure, draws blood quickly with minimum pain and treats them with respect and dignity as every encounter with any part of the hospital staff plays a role on improving or decreasing patient satisfaction (Alaloola & Albedaiwi, 2008).

### **Hospital pharmacy**

When community-based pharmacy services grow in scope and become an increasingly vital part of the global health care system, it is important to define patient satisfaction with such pharmacy-based services for the purposes of their successful implementation, long-term sustainability, quality management and improvement areas (Panvelkar, Saini, & Armour, 2009). Therefore, many studies have been done to measure patient satisfaction pharmacy drug dispensing policies. The studies analyzed found that the higher the level of therapy and monitoring and the more instruction, the higher the satisfaction score (Kansanaho, Isonen-Sjölund, Pietilä, Airaksinen, & Isonen, 2002).

### **Hypothesis Development**

*Experiences with doctors* was found out to be very important in determining patient satisfaction in healthcare service quality (Alaloola & Albedaiwi, 2008). Patient satisfaction is closely linked to communication between doctor and patient. This means that even if a doctor is a competent physician, he may generate low levels of patient satisfaction if he is not a good

communicator. There is evidence that patients who are satisfied are more likely to continue to use health care services, value and maintain relationships with health care providers, adhere to treatment and achieve better health outcomes (Panvelkar et al., 2009). Following this discussion, as sufficient literature was not evident, it is hypothesized that:

*H1: Experience with doctor is positively related to inpatient satisfaction*

*Physical environment* includes objects, equipment, services and medical environments that play a key role in influencing the hospital experience of the patient. Patients and visitors had very high cleanliness standards, with a deep fear of hospital acquired infections. There was a basic belief that hospitals should be clean places better than hotels, restaurants, or even the home of the patient. It was considered as important to encourage and demonstrate clean wards and facilities as cleanliness itself (Webb, 2007). Therefore, it has been hypothesized that:

*H2: quality of physical environment is positively related to inpatient satisfaction*

*Nursing staff* impact so much on patients as findings revealed the fundamental importance to patients and visitor of good staff. The attitudes and behaviors of staff towards patients and professions strongly influenced a patient's sense of well-being and how the relationship was built and maintained between staff and patients were essential to the patient's experience and satisfaction. The staff should make effort to ensure the patient understood what was happening and keep them up to date about their situation, which leads to increased patient confidence in staff. If a patient left without information and not attended to properly, this might generate unsatisfied feeling toward services (Webb, 2007). Based upon these discussion, in the model, it has been hypothesized that:

*H3: quality of nursing and supporting staff is positively related to inpatient satisfaction*

*Hospital administration.* When selecting a hospital, patient prefer hospitals with better policies that prioritize the health of the patients as well as the care they render rather than focusing on profits or optics (Alaloola & Albedaiwi, 2008). The improvement of attitude toward patient perspective can lead to enhance perceived quality of care (Baltussen, Yé, Haddad, & Sauerborn, 2002). Therefore, it has been hypothesized that:

*H4: quality of hospital administration is positively related to inpatient satisfaction*

*Pharmacy* is one of the main departments of any healthcare setting and many studies have shown that the availability of medicines is very necessary for provision of standard healthcare. The design and evaluation of an instrument to assess patient satisfaction with general services was also stated by Kamei et al., Their tool measured 7 dimensions of pharmacy services: pharmacist attitude, over the counter availability, convenient hours, 26 and facilities, availability of special services, convenient location, and record keeping of medication. In a factor analysis, a significant positive relationship was found between the first 4 dimensions and satisfaction (KAMEI, Teshima, Fukushima, & Nakamura, 2001). Based upon the literature rearview, it has been hypothesized that:

*H5: hospital pharmacy is positively related to inpatient satisfaction*

*Laboratory and X-Ray.* The results of lab and X ray image is important for diagnosis and treatment. Therefore, some patients eventually interact with technician and other health provider, so the communication and explanation of procedure to the patient can reflect patient opinion about hospital services. Therefore, it has been hypothesized that:

*H6: Quality of laboratory and X-RAY technician is positively related to inpatient satisfaction*



## **MATERIAL AND METHODS**

### **Location of study:**

This study was located in Khartoum, Sudan. With a total population of 5,274. The health services in Sudan are provided through 229 private hospitals and medical centers, most of the hospitals are located in Khartoum. In addition, Khartoum has a variety of solo-clinics: 684 specialist clinics, 392 GP clinics, 173 dental clinics, 447 laboratories, 33 X-RAY units, and 7 physiotherapy clinics (Organization, 2006). For this study, five private hospital were selected namely: Royal Care International Hospital, Asia hospital, Dream Hospital, Fedel Hospital, and Alyaa Hospital.

### **Participants and Procedure**

The target population of this study include all inpatients who were staying in the chosen private hospitals in Khartoum to receive treatment. The 5 hospital was selected since they are the main popular hospitals in Khartoum. The sample selection of participant conducted using simple random sampling, Simple random sampling was done for inpatient respondents where online questionnaire used to collect samples. Data was collected by methods of questionnaires to the patients who stayed in the hospital. A survey questionnaire conducted in order to identify the inpatient satisfaction toward healthcare service quality. The study adopted a validated tool questionnaire comprising 43 questions for measuring inpatient satisfaction. The questionnaire measures six (6) dimensions of quality which are experience with doctor, experience with hospital administration, physical environment, nursing staff, and hospital pharmacy, laboratory and x-ray technical services. The questions were divided to demographic questions and questions which measure inpatient satisfaction.

For data collection procedure, a full structured questionnaire has been distributed using social media, the respondents were allowed to fill up online google form with an explanation about purpose of study. The filled questionnaires were collected for data entry and analysis. Due to the language barriers, questionnaire has been translated to Arabic to have clear understanding. All patients were taken from those who visited and stayed in the hospitals, they requested to provide their general and specific information according to the questionnaire. The data analyzed by using SPSS Version 22 for Windows 10, Multiple Regression analyses conducted to test the hypotheses and descriptive analysis. The distribution of the demographic data collected from respondent analyzed by using descriptive analysis. The multiple regression test was carried out following the descriptive analysis. Multiple linear regression is a statistical method that examines the relationship between independent and dependent variables. This test helps to identify the relationships between the established independent variables (hypothesis) and the single dependent variable. Prior to carrying out the multiple regression, several series of assumptive tests were executed, namely: linearity, normal distribution, constant variance, multicollinearity, independence of errors and model adequacy.

### **Ethical consideration**

Approval to conduct study was granted by University of Cyberjaya (Appendix 2), the approval in Arabic due to the language barrier. Acceptance was obtained from the local authority in Sudan to conduct the study in the chosen private hospitals. The research respondents received informed consent to participate in the study, and confidentiality was maintained by maintaining the privacy of the study participants. The respondents involved in the study were protected by ensuring that the names were not mentioned in the data collection tool.

## RESULTS ANALYSIS

### Characteristics of the Survey Respondent

Respondents of this study have quite diverse characteristics. The personal data taken from the respondents including gender, age, income and purpose of visiting hospital. A total of 395 valid responses were obtained in the study with 0 missing data. As seen in Table 1, it seems that majority of the respondents who took part in this research was Male gender (50.9%), between ages 26-33 years (34.4 %). Result showed that (56.2%) of the respondent's income is more than 5000 SDG. The question on the purpose of visiting hospital showed that the main purpose of visiting is consulting a doctor with (47.1%).

Variable		Frequency	Percent
Gender	Male	201	50.9
	Female	194	49.1
	Total	395	100.0
Age	18-25	109	27.6
	26-33	136	34.4
	34-41	64	16.2
	42-48	41	10.4
	49 and above	45	11.4
	Total	395	100.0
Income	Between 1000-3000	86	21.8
	Between 3000-5000	85	21.5
	More than 5000	222	56.2
	Total	395	100.0
Purpose of visit	Visiting friend	62	15.7
	Meeting a doctor	186	47.1
	Accompany someone	147	37.2

**Table 1:** Characteristics of respondents of the questionnaire

### Descriptive Results

Data was analyzed using descriptive statistical methods (frequency Analysis) distribution on the respondents ' demographic elements as shown in Table (1).



*Pearson's Correlation*

	Inpatient satisfaction	Experience with Doctor	Physical environment	Nurses staff	Pharmacy	Laboratory and x-ray	Experience with administration
Pearson Correlation	1.000	.387	.344	.442	.948	.501	.408
Experience with Doctor	.387	1.000	.437	.312	.344	.348	.347
Physical environment	.344	.437	1.000	.343	.306	.356	.321
Nurses staff	.442	.312	.343	1.000	.276	.342	.284
Pharmacy	.948	.344	.306	.276	1.000	.464	.373
Laboratory and x-ray	.501	.348	.356	.342	.464	1.000	.358
Experience with Administration	.408	.347	.321	.284	.373	.358	1.000
Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.000
Experience with Doctor	.000	.000	.000	.000	.000	.000	.000
Physical environment	.000	.000	.000	.000	.000	.000	.000
Nurses staff	.000	.000	.000	.000	.000	.000	.000
Pharmacy	.000	.000	.000	.000	.000	.000	.000
Laboratory and x-ray	.000	.000	.000	.000	.000	.000	.000
Experience with Administration	.000	.000	.000	.000	.000	.000	.000
N patient Satisfaction	395	395	395	395	395	395	395
Experience with Doctor	395	395	395	395	395	395	395
Physical Environment	395	395	395	395	395	395	395
Nurses Staff	395	395	395	395	395	395	395

Pharmacy	395	395	395	395	395	395	395
Laboratory and x-ray	395	395	395	395	395	395	395
Experience with Administration	395	395	395	395	395	395	395

**Table 2:** Patient satisfaction measured by Pearson’s correlation

**Table 2** shows Pearson’s correlation between inpatient satisfaction and the six independent variables. From the table, patient satisfaction is highly positively related to Experience with doctors,  $[r(395) = .387, p = .000]$ ; physical environment  $[r(395) = .344, p = .000]$ ; nurse staff  $[r(395) = .442, p = .000]$ ; pharmacy  $[r(395) = .948, p = .000]$ ; laboratory and X-ray  $[r(395) = .501, p = .000]$ ; Experience with administration  $[r(395) = .408, p = .000]$ . These correlations mean that inpatient satisfaction improves in the private hospital sector as inpatients are satisfying from service quality demonstrated by the six elements. These high correlations indicate the possibility that the six elements of service quality are good predictors of inpatient satisfaction.

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. Change	
1	.967 <sup>a</sup>	.935	.934	.20784	.935	924.743	6	388	.000	1.936

a. Predictors: (Constant), Experience with administration, Nurses staff, Experience with Doctor, Pharmacy, Physical environment, Laboratory and x-ray

b. Dependent Variable: inpatient satisfaction

**Table 3:** Model summary table

**Table 3** is the model summary in the prediction of patient satisfaction from the six independent variables. The R Square value shows that the six variables are strong or good predictors of inpatient satisfaction. More precisely, the six variables explain about 93% of the variables that affect inpatient satisfaction with the healthcare service qualities. The status of inpatient satisfaction, in this regard, can be said to be largely affected by the independent variables. The value of the Durbin-Watson statistic indicates that another important condition of regression analysis, independence of errors, is satisfied.

**Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	.048	.049		.987	.324					
Experience with Doctor	.018	.015	.018	1.171	.242	.387	.059	.015	.716	1.397
Physical environment	-.007	.013	-.008	-.531	.596	.344	-.027	-.007	.720	1.388
Nurses staff	.152	.012	.185	12.735	.000	.442	.543	.165	.797	1.254
Pharmacy	.772	.014	.876	56.856	.000	.948	.945	.738	.709	1.410
Laboratory and x-ray	.017	.013	.022	1.398	.163	.501	.071	.018	.684	1.463
Experience with administration	.017	.015	.017	1.154	.249	.408	.058	.015	.761	1.315

a. Dependent Variable: inpatient satisfaction

**Table 4:** Coefficients table

**Table 4** shows the coefficients of the regression equation formed in the prediction of patient satisfaction with healthcare service quality. It can be seen that apart from nursing staff, whose statistic is insignificant at 5% significant level ( $p = .000$ ), and pharmacy ( $p = .000$ ) have significant t statistics. The other four independent variables are insignificant. Though inpatient satisfaction is significantly related to pharmacy and nursing staff. The multi-collinearity condition is satisfied, as each independent variable has a Variance Inflation Factor (VIF) of less than 10.

## DISCUSSION

Patient satisfaction is a relative phenomenon assessed on the basis of experiences, expectations and perceived needs of patients (Merkouris et al., 1999). Both technical and non-technical factors influence patient satisfaction. This study evaluates the perceived levels of patient satisfaction with health care services. In general, the main objective of this research is to investigate the relationship between healthcare service qualities with inpatient satisfaction in private hospital in Khartoum, Sudan. Furthermore, to measure the relationship between experiences with doctors, physical environment, nursing staff, Laboratory and X-RAY, pharmacy, and experience with hospital administration which determines the healthcare quality and patient satisfaction. The research was conducted in 5 private hospitals in Khartoum-Sudan and the data was collected by willing respondents through online questionnaire after ensuring the confidentiality. The items of the questionnaire created using English language then was translated from English to Arabic to enable easy understanding as most of the Sudanese residents speak more Arabic. Google forms was used for online filling of the questionnaire from desired population. 395 responses were received. Therefore, all the data was included for analysis.

This study examined the relationship between dependent and independent variables, and to identify if the experience with doctors, physical environment, nursing staff, pharmacy, laboratory and X-RAY, and experience with hospital administration can affect inpatient satisfaction in Sudan. From the population of the respondents, the current study found that the majority of respondent were male with 50.9% and 56.2% respondents earn an income more than 5000. The majority of respondents were between 26-33 years which is represent 34.4% of the total responses. Furthermore, the main reason for visiting the hospital was for meting doctors for consultation with 47.1 percent from total responses. This research focuses on descriptive analysis, testing the assumption of multiple linear regression which are: linearity, normal distribution, correlation analysis, no multicollinearity and multiple linear regression. In this research there are six hypotheses with six variables which were investigated. The study evaluated each variable and it is effect on patient satisfaction. The research found out that the pharmacy has high significant value which is 0.876 and t value 56.856. Secondly, the study found out the nursing staff have significant impact on dependent variable with 0.185 beta value and 12.735 for t value. However, compared to other variable experience with doctors, hospital administration, nursing staff and physical environment which was not significant, the pharmacy has the strongest impact on inpatient satisfaction.

The main goal of any private health institution is to offer quality healthcare to their patients as well as provide the best advice and treatment available to the patients to ensure patient satisfaction, satisfied patients are more likely to follow prescribed treatments, and they can come back again for future medical needs, consultations and recommend the hospital to others. The aim of this study was to investigate the level of inpatient satisfaction with the healthcare service provided in the hospitals in Khartoum. While the study and findings reveal a high satisfaction with the pharmacy and nursing staff which explain the main purpose of visiting the hospital was to consult a doctor for treatment. The availability of the medicine from the same hospital pharmacy and getting the prescription without any error and brief explanation of how to use it was the main satisfaction determination for the patient in the private hospital.

### **Recommendation for future research**

This study was conducted in Khartoum –Sudan and the respondents were from 5 hospitals; other research could include more hospital from different state and compare results. Khartoum state was chosen for this study because it is the capital city of Sudan with high population and best health

services compared to other states. Furthermore, this research focus on Khartoum state but can't represent the whole population of Sudan, because Khartoum is the most developed city in Sudan. Additional research is required in other states to assess the quality of healthcare delivered by the private and government health care facilities in other states and how these affect patient satisfactions. The number of respondents was conducted in this study was 395 from different hospitals, for further research bigger number of responders can be targeted to get a wider perspective.

## CONCLUSION

In conclusion, the patient feedback is so important to improve health care services quality, the more satisfied patients are more they are likely to respond to treatments and to get better health outcomes. Measuring the patient satisfaction is a wide concept to be measured, this study attempted to investigate the relationship between inpatient satisfaction and other variables. This study was carried out to investigate the relationship between quality of healthcare services and patient satisfaction and to compare this relationship between different income, gender, age and the purpose of hospital visits subgroups. It was revealed that there was a strong relationship between pharmacy, and nursing staff with inpatient satisfaction, which these variables were the main determinant of inpatient satisfaction in the private hospitals in Sudan. This study has provided valuable insight regarding inpatient satisfaction with health care services from the private hospitals in Sudan, and its predictors. It may be useful in the future to investigate the satisfaction levels of other categories of patients such as outpatients and clinic patients, for comparative purposes. Furthermore, it would be interesting for other private hospitals in similar settings to research patient satisfaction levels, and to identify possible trends in the challenges that patients experience.

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