Cardiac Catheterization Patients Satisfaction towards Health Care Services Provided At Cardiac Center in AL-Najaf AL-Ashraf Governorate

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Abstract- **Objectives:** this study aimed to assess cardiac catheterization patients satisfaction towards health care services and to find out the relationship between patients satisfaction and their demographic and clinical data. **Methodology:**Descriptive analyticdesign was adopted in the current study in order to assess cardiac catheterization patients satisfaction towards health care services. A non-probability (Purposive sample) of (150) patients who were completed cardiac catheterization procedure.Data collected through using of a well-designed questionnaire consist of two main parts, part I consists of demographic and clinical data, part II consists of 60 items about health care services. Data collected by direct interview method with cardiac catheterization patients'. Data was analyzed by using of descriptive and inferential data analysis. **Results:** The findings indicate thatonly about $1/3_{rd}$ of the study sample were satisfied with health care services. Also there was a highly significant relationship between the patients' monthly income and their satisfaction only towards financial domain of health care services. In addition there was a significant association between number of previous surgeries and patients satisfaction only with general satisfaction domain of health care services.**Conclusion:** The study concludes that health care services are of low efficiency, as well as the patients' satisfaction is affected by their demographic and clinical data. **Recommendation:** The study recommends that,health oriented mass media approach should be employed to increase the health staff awareness about the policies that should be used to improve the patients' satisfaction with health care services.

Index Terms- cardiac catheterization,patient, health care services.

I. INTRODUCTION

Cardiovascular diseases are known as the leading cause of death in the world (Jamshidi, et al., 2010)[1]. According to World Health Organization, about 18 million deaths occurred due to cardiovascular diseases in 2008 and this value has been estimated to reach 23 million by 2030 (WHO, 2013)[2].In the UK, USA, Canada and Australia CAD is the main cause of death among adults representing approximately one third of all dead people who are 35 years old or more (GHANBARIAN, et al., 2009)[3].

Coronary Angiography (CA) is one of the most common and the best method for diagnosis of coronary artery diseases (Moradi and Adib-Hajbaghery, 2015)[4].Recently cardiac catheterization procedure takes a wide range because of its advantages at little time for patients with heart disease such as IHD, CAD, congenital heart disease and valvular heart diseases. So assessing Quality of health care services will determine the degree to which health services for patients with cardiac catheterization and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (Kern, 2011)[5].

Presently, heart catheterization is the most used hemodynamic interventional and diagnostic technique worldwide and accounts for approximately six thousand procedures per one million inhabitants, per year, in Western counties. The complication and restenosis rates are low. Cardiac catheterization is the insertion of a catheter up to the aorta and left ventricle by puncturing the brachial or femoral artery and also up to the right side of the heart by puncturing the brachial or femoral vein. Images of the coronary arteries are shown by injecting contrast through the catheter (Buzatto and Zanei, 2010)[6].

As we know patients with heart disease are at risk of sudden heart attack and life threatening conditions. Also exertion or emotional stress can deteriorate their health status. Sometimes a little more time is sufficient to save patients life (Mikosch, et al., 2010)[7]. So nowadays, it has become evident that the care of hospitalized coronary patients is not only limited to the treatment of the disease and the prevention of complications but also involves assessment of their needs for the provision of high quality of care (Polikandrioti, et al., 2011)[8].

In health care, patients' satisfaction has become one of the most important and challenging competitive elements. Health care professionals are expected to provide both high quality of care and exceed customers' expectation while being cost conscious and efficient. Satisfaction is typically measured by satisfaction surveys that patients complete about their recent hospital experience (Ferrel, et al., 2010)[9].

The satisfaction is subjective, yet measurable, provided that the consumer has an initial point of reference. Satisfaction on healthcare must consider the "emotional" aspect related to a medical action that may have a significant impact on the patients' own health. In this way, understanding all dimensions and factors related to patient satisfaction is biggest issue in order to improve the quality of healthcare (de Almeida, et al., 2015)[10].

The ability to satisfy patients is vital for many reasons. It is mainly helpful for hospitals to establish a patient who is oriented towards quality health services rather than focusing only on the patient's disease. Improvement in the service quality involuntarily uplifts the reputation gained by the health care

institution. Patients' satisfaction is also a valuable competitive tool, to increase staff motivation (Dayasiri, 2010)[11].

Objectives of the Study

To assess cardiac catheterization patients' satisfaction towards health care services provided at cardiac center in AL-Najaf AL-Ashraf governorate.

To find out the relationship between cardiac catheterization patients' satisfaction towards health care services and their socio-demographic characteristics of age, sex, level of education, economic status, occupation, marital status and residence.

To find out the relationship between cardiac catheterization patients' satisfaction towards health care services and their clinical data of medical diagnosis, disease duration and number of admission.

II. METHODOLOGY

Design of the Study

Descriptive analytic Design was adopted in the current study in order to assess cardiac catheterization patients satisfaction towards health care services.This study started from October 1st, 2015 to June 30th, 2016 in order to achieve the early stated objectives.Non Probability "purposive" sample of (150) patients who were complete cardiac catheterization procedureat AL-Najaf center for heart surgery and cardiac catheterization, which represents Al-Najaf Al-Ashraf governorate.

An Interviewing Patients' Satisfaction Questionnaire was prepared and modified by the researcher after reviewing of relevant studies and based on (PSQIII) to assess cardiac catheterization patients' satisfaction towards health care services. The final study instrument consists of two main parts:

Part 1:Demographic and Clinical Data

which consists of (14) items, that include residency, age, gender, marital status, level of education, occupation, monthly income,number of admissions to the center, disease period, medical diagnosis, number of previous surgeries, the referral source to cardiac center (A physician or a hospital) and finally the time that the patient spent in the reception (less than 30 min\30-45 min\45-60 min\60 min or more).

Part III: Patients Satisfaction Form

The second part of the questionnaire consists of (60) items towards the following seven (7) domains of health care services provided in cardiac center: Access\availability\convenient domain, Communication domain, Financial aspects domain, General satisfaction domain, Interpersonal aspects domain, Technical quality domain, Time spent with medical team domain, Nursing care domain.

The data is collected through the utilization of a developed questionnaire (Arabic version) and by means of interview with each patient included in the present study. Each interview took approximately (20-25) minutes. The data collection process started from February 8th, 2016 to April 8th, 2016.

Statistical Analysis

In this study the data were analyzed by using of (SPSS) program V 20 (Statistical Package for Science Service), and the statistical package (Excel 2010). Below are the statistical data analysis methods to evaluate the study result:

Descriptive Data Analysis:**A)**Statistical tables (Frequencies, percentages), **B)**Arithmetic mean and Mean of score–(MS), And the assessment by cutoff point (0.66) due to the three points likert scales with three levels of assessment, unsatisfied (1-1.66), unsatisfied to certain limit (1.67-2.33), and satisfied (2.34-3) **C)** Standard Deviation: Standard deviation used to measure of Variability when interval or ratio data are obtained. This statistic describes how values vary about the mean of the distribution, **D)**Pearson's correlation coefficient measured to determine the relationship between the studied scales and the different socio-demographic characteristics and clinical data, **E)** (Alpha Cronbach) Reliability Coefficient – R.C. for the pilot study: **R.C. =** It was used to estimate the internal consistency of the study instrument, **F)** Graphical presentation by using:Pie-Chart.

Inferential Data Analysis:I Binomial: for testing the random distribution of the observed frequencies according to their expected of two categorical nominal scale.

IIChi-Square for testing a difference between several category nominal scales of dichotomous random variables.

Ethical Consideration:

An official permission is obtained from the faculty of nursing / university of Baghdad in order to conduct the study. Also permission is obtained from the Ministry of Planning Central Council of Statistics for the acceptance of the study questionnaire draft. Along with the former, an official permission is obtained from the Najaf Health Directorate as well as a formal permission from Department of Healthin AL-Najaf center for heart surgery and cardiac catheterization to collect the required data and interview the subjects at cardiac center wards. Finally, the researcher obtained an agreement from the patients themselves to participate voluntarily in the study.

III. RESULTS

Table (1):The Study Sample Distribution according to their Demographic Data

Demographic data	Ranking	Frequency	Percent
Age (years)	22-32	3	2
	33-43	6	4
	44-54	40	26.7
	55-65	66	44

	66-76	**30**	**20**
	77=>	**5**	**3.3**
Gender	**Male**	**99**	**66**
	Female	**51**	**34**
Level of education	**Not able to reads and writes**	**35**	**23.3**
	Able to reads and writes	**6**	**4**
	Primary school	**51**	**34**
	Intermediate school	**17**	**11.3**
	Secondary school	**16**	**10.7**
	Institute	**17**	**11.3**
	College or above	**8**	**5.3**
Monthly income	**Enough**	**39**	**26**
	Enough to certain limit	**41**	**27.3**
	Not enough	**70**	**46.7**
Residence	**Rural**	**29**	**19.3**
	Urban	**121**	**80.7**
Marital status	**Single**	**1**	**7**
	Married	**125**	**83.3**
	Divorced	**3**	**2**
	Widowed	**21**	**14**
Occupation	**Employee**	**26**	**17.3**
	Free works	**30**	**20**
	Out of work	**74**	**49.3**
	Retired	**20**	**13.3**

The above table shows distribution of cardiac catheterization patients according to their socio-demographic data. It indicates that most of the study sample are male (66%) and they are between (55-65) years of age (44%). Also it views that most of patients regarding to the level of education are primary school graduated (34%). Concerning to economic status and occupation (46.7%) of study sample have not enough monthly income and (49.3%) of them are out of work. Finally the table (4.1) shows that (80.7%) of them are from urban residence and (83.3%) have been married regarding marital status.

Table (2): The Study Sample Distribution according to their Clinical Data

Clinical data	Ranking	Frequency	Percent
Medical diagnosis	**Angina**	**100**	**66.7**
	Myocardial infarction	**44**	**29.3**
	Valvular heart disease	**6**	**4**
Number of admission	**One**	**75**	**50**
	Two	**65**	**43.3**
	Three	**10**	**6.7**
Number of previous surgery	**One**	**54**	**36**
	Two	**26**	**17.3**
	No surgery	**70**	**46.7**
Doctor referral	**Yes**	**126**	**84**

Hospital referral	No	24	16
	Yes	24	16
	No	126	84
Time spent in reception	Less than 30 min	16	10.7
	30-45 min	7	4.7
	45-60 min	15	10
	More than 60 min1-3	112	74.7
Disease period years	1-3	134	89.3
	4-6	8	5.3
	7-9	2	1.3
	10-13	6	4

Table (2) reflects that in regarding to the medical diagnosis the majority of the study sample (66.7%) have angina disease and patients with (1-3) years disease period was of highest rate (89.3%). Also it shows that highest rate of them (50%) visit the cardiac center for first time, and mostly (46.7%) have no previous surgery concerning previous surgery. Furthermore, the study results indicated that majority of the study subjects (84%) are admitted through doctor referral and not hospital referral. Finally the biggest group of the patients (74.7%) was spent more than 60 minutes in reception before go into their wards.

Table (3): Distribution of Patients by Their Responses towards Total Items of Health Care Services

	Scale	F	%	M.S.	S.D	Evaluation
Total	**Unsatisfied**	5	3.3	2.32	.537	**Unsatisfied to certain limit**
	Unsatisfied to certain limit	91	60.7			
	Satisfied	54	36			
	Total	150	100			

F=Frequency, %= Parentage, S.D= Standard Deviation, M.S= Mean of Score, Cut off point (0.66), Unsatisfied (mean of score 1-1.66), Unsatisfied to certain limit (mean of score 1.67-2.33), Satisfied (mean of score 2.34 and more).

Table (3) is the most important of the study results which reveals that the biggest group of the study sample (60.7%) are unsatisfied to certain limit with total items in the cardiac center and based on the statistical cut of points (mean of score = 2.32) all of the study subjects generally share the same result.
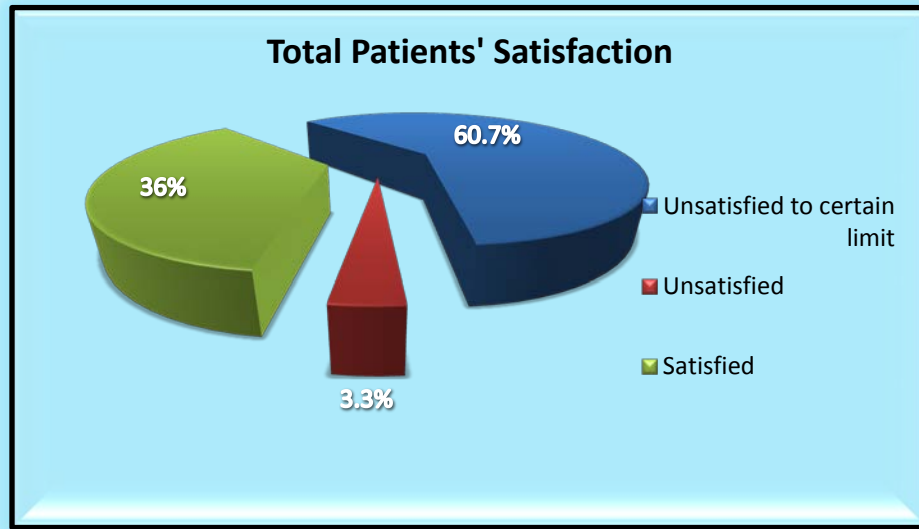
Figure (4-1): Total Patients' Satisfaction with Health Care Services

Table (4): Statistical Association between, Patients Overall Responses to the Total Items of Health Care Services Provided at Cardiac Center and Their Demographic Characteristics

Demographic data	Rating	Overall Ratification			X^2	D.F	P value
		Unsatisfied	Unsatisfied to certain limit	Satisfied			
Age/year	22-32	0	3	0	13	10	.223
	33-43	1	3	2			
	44-54	3	27	10			
	55-65	1	37	28			
	66-76	0	19	11			
	77=>	0	2	3			
Gender	Male	4	56	39	2.17	2	.337
	Female	1	35	15			
Residence	Rural	0	18	11	1.24	2	.536
	Urban	5	73	43			
Marital status	Single	0	1	0	1.97	6	.922
	Married	5	76	44			
	Divorced	0	2	1			
	Widowed	0	12	9			

		Unsatisfied	Unsatisfied to certain limit	Satisfied	X²	D.F	P value
Level of education	Not able to reads and writes	1	21	13	11	12	.526
	Able to reads and writes	0	2	4			
	Primary school	2	31	18			
	Intermediate school	1	9	7			
	Secondary school	0	13	3			
	Institute	0	9	8			
	College or above	1	6	1			
Occupation	Employee	2	15	9	4.27	6	.640
	Free works	2	18	10			
	Out of work	1	45	28			
	Retired	0	13	7			
Monthly income	Enough	0	22	17	4.75	4	.314
	Enough to certain limit	2	22	17			
	Not enough	3	47	20			

$X^2 =$ **Chi-square, D.F= Degree of freedom, P-value= Probability value**

This table shows that there is a non-significant association between the patients' satisfaction with health care services and their demographic data at p-value more than 0.05.

Table (5): Statistical Relationship between, Patients Responses to the Total Items of Health Care Services and Their Clinical Data

Clinical data	Rating	Overall ratification			X²	D.F	P value
		Unsatisfied	Unsatisfied to certain limit	Satisfied			
Medical diagnosis	Angina	3	58	39	4.82	4	.306
	Myocardial infarction	1	29	14			
	Valvular heart disease	1	4	1			
Disease period (year)	1-3	5	81	48	2.46	6	.873
	4-6	0	4	4			
	7-9	0	1	1			
	10-13	0	5	1			
Number of	One	2	47	26	2.75	4	.600

admission							
	Two	3	36	26			
	Three	0	8	2			
Number of previous surgery	One	2	34	18	.739	4	.946
	Two	1	14	11			
	No surgery	2	43	25			
Referral source	Doctor referral	4	74	48	1.50	2	.471
	Hospital referral	1	17	6			
Time spent in reception	Less than 30 min	0	11	5	7.25	6	.298
	30-45 min	1	2	4			
	46-60 min	1	7	7			
	More than 60 min	3	71	38			

X^2 = Chi-square, D.F= Degree of freedom, P-value= Probability value

   The apparent table in previous page illustrates that there are non-significant relationship between patients' satisfaction and all of their clinical data, there by consideration of the P-value at more than 0.05.

Table (6): Statistical Association between the Patients' Responses to Financial Domain and Their Demographic Data

Demographic data	Rating	Financial Domain Ratification			X^2	D.F	P value
		Unsatisfied	Unsatisfied to certain limit	Satisfied			
Age/year	22-32	1	0	0	3.92	10	0.95
	33-43	1	0	5			
	44-54	7	6	27			
	55-65	12	9	45			
	66-76	7	2	21			
	77-87	1	0	4			
Gender	Male	22	10	67	1.76	2	0.41
	Female	7	7	37			
Marital status	Single	0	0	1	3.58	6	0.73
	Married	24	15	86			
	Divorced	1	1	1			
	Widowed	4	1	16			
Level of education	Unable to read & write	7	3	25	11.9	12	0.44
	Able to read & write	0	2	4			
	Primary school	15	5	31			
	Intermediate school	3	2	12			

					X²	D.F	P-value
	Secondary school	2	1	13			
	Institute	2	2	13			
	College or above	0	2	6			
Occupation	Employee	2	2	22	**6.37**	**6**	**0.38**
	Free works	8	5	17			
	Out of work	14	9	51			
	Retired	5	1	14			
Monthly income	Enough	0	4	35	**28.4**	**4**	**0.00***
	Moderately enough	3	5	33			
	Not enough	26	8	36			

X² = Chi-square, D.F= Degree of freedom, P-value= Probability value

Table (5) shows that there is no any significant correlation between patients' responses and all of their demographic characteristics at p-value of more than 0.05, except for monthly income there is a strong correlation according to p-value of (0.00).

Table (7): Statistical Association between the Patients' Responses to General Satisfaction Domain and Their Clinical Data

Clinical Data	Rating	General Satisfaction Domain Ratification			X²	D.F	P value
		Unsatisfied	Unsatisfied to certain limit	Satisfied			
Medical diagnosis	Angina	45	41	14	**0.73**	**4**	**0.94**
	Myocardial infarction	22	16	6			
	Valvular heart disease	2	3	1			
Disease period/year	1-3	61	55	18	**17.9**	**18**	**0.45**
	4-6	3	3	2			
	7-9	1	1	0			
	10-13	4	1	1			
Number of admission	One	39	23	13	**6.82**	**4**	**0.14**
	Two	25	32	8			
	Three	5	5	0			
Number of previous surgeries	One	24	28	2	**10.9**	**4**	**0.02***
	Two	11	8	7			
	No surgery	34	24	12			
Referral source	Doctor referral	57	50	19	**0.77**	**2**	**0.67**
	Hospital referral	12	10	2			
Time spent in reception	Less than 30 min	9	3	4	**6.63**	**6**	**0.35**
	30-45 min	4	2	1			
	46-60 min	5	9	1			
	More than 60 min	51	46	15			

X² = Chi-square, D.F= Degree of freedom, P-value= Probability value

The overhead cited table reveals that there are non-significant connection between patients' responses and all of their clinical data, except regarding to the number of previous surgery due to p-value of (0.02) which indicates that there is a significant connection.

IV. DISCUSSION

According to table (1) the results of the present study show that the majority of the sample living at urban residential area. This result comes along with Okoro and Ngong (2012)[12]; Alzolibani (2011)[13]; Saleem et. al., (2011)[14] whose results indicate that the majority of the study subjects are reside in a big cities rather than the countryside.

Regarding to the study subjects gender, the results indicate, that the higher percentage of the study sample are males. This result comes along with Saleemet. al., (2011)[14]; Mehta et. al., (2004)[15]; Akhtari-Zavare et. al., (2010)[16], all of them mentioned that the male is the dominant gender for patients with ischemic heart disease. In addition, the gender differences in the broad scope of health and illness have been the subject of extensive investigation, and are also currently gaining more attention in nursing.

Regarding to the sample age groups, the study results indicate that the higher percentage of the study sample are within (55-65) years old. This result is supported by Oliveira-Filhoet. al., (2012)[17]; Rastogi et. al., (2004)[18], whose results indicated that the 52 years old is the dominant age for the study sample. Also Zareiet. al., (2015)[19], study results argue that the average age of the patients was 48±16.9. FinallyPiniet. al., (2014)[20], results reflect that majority of patients age are (45-65) years old and this finding supports the present study result.

Regarding to marital status, the majority of study sample are married. This result is agreed with Al Sharif (2008)[21]; Emadi et. al., (2009)[22]; Alemu et. al., (2014)[23]; Alzolibani (2011)[13]; Agosta (2009)[24]; Bisiriyu (2008)[25], they found that the highest percentage is for married patients. In addition, it's clear that the patients in the same age are often married when compared with those with early age groups. Also those patients are part of the east population, those population often marry early, as compared with other people from other cultures.

Concerning with educational levels, the higher percentage are for those who are graduated from primary schools. This result agrees with Bisiriyu (2008)[25]; Ko, et. al., (2007)[26]; Lee and Mittelstaedt (2004)[27]; Halima (2015)[28]; Giannakopoulou et. al., (2010)[29],all of them found that the majority of the study subjects are secondary school graduated. In additionSreenivas and Babu (2012)[30]; Tang et. al., (2013)[31], study results reviewed that 68.33% have low level of education.

Regarding occupational status, the highest percentage is for the out of work followed by the free work patients. This result come because most of the patients, male and female are of advanced age who prefer to work in their houses because of the alteration in the physical status. Al-Hussein and khaleel (2015)[32], stresses that 52% of the study sample are out of work while Shinde and Kapurkar (2014)[33], demonstrated that highest percentage 60% of study subjects are unemployed and these findings support the present study result regarding occupational status. Also Javed (2005)[33]; Al-Biaty (2014)[35], indicates that the majority of patients are without work.

According to table (2) in regarding to the diagnosis, the results indicated that the higher percentage is for angina. This result is supported with the Brown et. al., (2008)[36]; Taylor et. al., (1998)[37], the results indicated that the higher percentages are for patients those who are suffering from angina.

In relation to the duration of disease, the higher percentage is for those who are suffering from the disease for one to three year. This result is in agreement with Halima (2015)[28], study finding which argue that 91% of the patients suffering from their disease for less than 4.5 years.

Relative to the number of previous admission, the higher percentage is for those who are admitted for first time followed by two times previously.These results come because the patients who are admitted to the hospital are often from those with a new suffering.

About describing the patients' previous surgeries this study shows that the biggest part of patients have no previous surgery. The study of Halima (2015)[28], supports this finding when concurs that many of their study participants had no previous surgery.

When remember the monthly income the study results reflects that most of the patients are of insufficient income. Al Sharif (2008)[21]; Agosta (2009)[24]; Villarruz-Sulit et. al., (2009)[38]; Sreenivas and Babu (2012)[30]; Singh et. al., (2013)[39]; Shinde and Kapurkar (2014)[33], all of them are in covenant with the present study result through demonstrating that the largest portion of the study participants are of low and insufficient monthly income.

Focusing on patient referral to the cardiac center the study reveals that more than half of them referred to the center by physicians (doctors).

Finally refer to the amount of time that the patients spent in the reception the current study stresses that great number of the study subjects spent more than 60 min in the reception. Coming along with existing study result Joshi et. al., (2013)[40], in their study of patients satisfaction admits that the time of coming to hospital and consulted by doctor was too long. While Qadriet. al., (2012)[41], conversely determined that proportion of respondents indicating that waiting time was excellent, very good and good were 18%, 32% and 20% respectively. Most patients had to wait for 15-30 minute to be called into the consultation room. 32.4% of the patients said that they did not have to wait, but were called instantly.

According to the table (3) and figure (1), in this study the findings depict that the highest ratio of participants 60.7% are unsatisfied to certain limit with total items of health care services followed by 36% satisfied. This result comes because of the insufficient quality of care in the access-availability-convenience domain, general satisfaction domain, and time spent with medical team domain that represents low level of satisfaction. Also there are items in other domains which influence the overall satisfaction level. The study of Mukhlif (2015)[42], interact positively with present study findings. It was conducted in the public teaching hospitals of Mosul city and involved several hospitals to find out if the quality of health care services provided was enough to satisfy the patients' demands. The study were stresses that (40 %) of patients completely satisfied, and (60

%) of patients not satisfied in Ibn-Sina teaching hospital. for Al-Jamhory teaching hospital (47 %) of patients were completely satisfied, and (53 %) of patients were not, while (42 %) of patients stayed completely satisfied, and (58 %) of them remained not in Al-Salam teaching hospital. At the end (49 %) of respondents stood completely satisfied, while the remainder notice unsatisfied in Al-Kansaa teaching hospital.

In other study and on the same wayIbrahim[43] who conducted a patients satisfaction survey in 2008 concludes that 20.7% of contributors were satisfied, 20.3% unsatisfied 59% remained unsatisfied to certain limit. Plus the previously stated studiesSa'adoon[44] and others complete their patient satisfaction study in 2008 about health care services quality in Thi-qar province hospitals of Iraq admits that of the clients, sixty one (13.4%) were very satisfied with the health care services provided in the facility, three hundred nineteen (70.5%) were unsatisfied to certain limit, and eighty two of them (18.1%) were very unsatisfied.

According to tables (4), (5), (6) and (7)The study marks shows that there is a non-significant association between the patients' satisfaction with the total health care service items and their demographic and clinical data at p-value more than (0.05) generally. But specifically the study marks illustrate that there are significant correlations only between the patients satisfaction with financial aspects domain and their monthly income, at p-value of (0.00), and also between the patients' satisfaction with general satisfaction domain and their number of previous surgeries, at p-value of (0.02).

Mandokhailet. al., (2007)[45]study outcomes, didn't demonstrate any significant relationship between patients' satisfaction and all of their demographic and clinical data, and these outcomes support the existent study findings. The second study is of **Joy (2011)[46],** which shares the same results with the one before cited study and indicates that there was a non-significant correlation between patients' satisfaction and all of their demographic and clinical data except for gender. Third study which concur that there was a non-significant link between the patients' satisfaction and their demographic and clinical characteristics as a whole is of Ibrahim (2008)[43]. In addition there are some other studies like, Tang (2013)[31]; and Narenjiha et. al., (2012)[47], their study findings show that there was no significant relationship among age, gender, marital status and patients' satisfaction, and also Mukhlif (2015)[42], revealed that a non-significant association was between gender, level of education, occupation and the patients satisfaction.

Regarding to the monthly income difference with financial aspects domain of health care services at this study,Afzalet. al., (2014),[43] study results agree this result when stresses that there was a statistical significant difference between patients' monthly income and their satisfaction with health care services at p-value 0f (0.001). Also Bener and Ghuloum (2013)[48], assure this fact when stipulated that the significant correlation was visible between patients' satisfaction about health care services, and their monthly income at p-value of (0.03). On the same lineGanasegeran[49] and others were conduct a patients' satisfaction survey in 2015 which its outcome reflects that there was a significant difference between patients satisfaction towards health care services and their monthly income at (0.001) p-value. FinallyAl-Hussein and Khaleel (2015)[32] study also support

current study findings as it reveals that there was a significant association between patients' monthly income and their level of satisfaction concerning health care services, according to p-value of (0.00).

With reference to the statistical association between number of previous surgeries and level of patients' satisfaction towards general satisfaction domain of health care services, Al-Sakkaket. al., (2008)[50]study upshots, appear that there was a significant relationship between patients experience and their level of satisfaction regarding health care services based on the p-value of (0.015), and it is equal to the existent study findings. Equivalently also another study of Nuha (2009)[51], stated that there was a strong significant link between patients history of previous hospitalization and their responses to the health care service items according to p-value of (0.001).

V.   CONCLUSIONS

1. Health care services provided at cardiac center are of low efficiency due to that, only about $1/3_{rd}$ of study participants are satisfied with it.
2. Accessibility, general satisfaction, and time spent with medical team domains, affect cardiac catheterization patients' dissatisfaction more than the other domains.
3. Of demographic data, merely monthly income affects the cardiac catheterization patients' satisfaction, only towards financial domain of health care services.
4. Of clinical data, merely number of previous surgeries affects the cardiac catheterization patients' satisfaction, only with general satisfaction domain of health services.
5. Males within 55 to 65 years old who are living in urban are more risky for ischemic heart diseases specially angina, than the others.
6. Almost ischemic heart disease patients have inadequate monthly income, because the disease nature, constraints them to leave their works.
7. Acute cases of ischemic heart disease are the commonest which treated by cardiac catheterization procedure, this conclusion come because the largest portion of the study sample admitted for the first time to a cardiac center, have short disease period, and have no previous surgeries.

RECOMMENDATIONS
Based on the study conclusion, the study recommends the following:
1. An intensive comprehensive wide population-based (national level) studies could be conducted to assess the cardiac catheterization patients' satisfaction towards health care services provided in cardiac centers, with a suitable solutions for improvement of health care services.
2. More emphasis should be put on the importance of patient's satisfaction especially towards health care

services in the curriculum of medical and nursing colleges as well as health institutes and nursing schools.

3. Health oriented mass media approach should be employed to increase the health staff awareness about the policies that should be used to improve the patients' satisfaction to health care services.

4. Sustain in service education activities for all health care providers and more emphasis to be put on the importance of patients' satisfaction regarding health care services provided in cardiac centers.

Health care providers especially in cardiac centers can utilize the findings of the present study to recognize the strengths and weaknesses of health care services and adopt necessary measures in enhancing health care quality to increase patients' satisfaction.

REFERENCES

[1] Jamshidi N, Abbaszadeh A, NajafiKaliani M. "The effect of video education on comfort and tolerability of patients undergoing coronary angiography." Iranian Journal of Nursing Research. 2010; 5 (16): P.P. 38-44.

[2] WHO. Cardiovascular disease. World Health Organization. 2013; [cited accessed August 28, 2013]. Available from: http://www.who.int/cardiovasculardiseases/en/index.html.

[3] Ghanbarian A, Hadaegh F, Harati H, Zabetian A, Azizi F. "Prevalence of coronary heart disease among Tehran adults." Tehran Lipid and Glucose Study Eastern Mediterranean Health Journal, 2009; 15 (1).

[4] Moradi T, Adib-Hajbaghery M. The Effect of a Multi-Modal Preparation Package on Anxiety in Patients Undergoing Coronary Angiography. International Cardivascular Research Journal. 2015 Jan; 9 (1): p.p. 10-16.

[5] Kern MJ. The cardiac catheterization handbook. Fifth edition. Printed in China: saunders Elsevier; 2011: P.P. 1-4

[6] Buzatto LL, Zanei SS. Patients' anxiety before cardiac catheterization. Einstein (São Paulo). 2010 Dec; 8 (4): P.P. 483-487.

[7] Mikosch P, Hadrawa T, Laubreiter K, Brandl J, Pilz J, Stettner H, Grimm G. "Effectiveness of respiratory-sinus-arrhythmia biofeedback on state-anxiety in patients undergoing coronary angiography." Journal of Advanced Nursing. 2010 May 1; 66 (5): p.p. 1101-1110.

[8] Polikandrioti M, Babatsikou F. "Information to coronary disease patients." Health science journal. 2013; 7 (1), p.p. 3-10.

[9] Ferrel B, Virani R, Paice J. "Statewide efforts to improve palliative care in critical care settings." American Association of Critical Care Nurse, 2010; 30 (6), p.p. 40-45.

[10] de Almeida RS, Bourliataux-Lajoinie S, Martins M. "Satisfaction measurement instruments for healthcare service users: a systematic review (Instrumentosparamensuração de satisfação de usuários de serviços de saúde: umarevisãosistemática)." Cademos de SaúdePública Rio de Janeiro. 2015 Jan; 31 (1): P.P. 11-25.

[11] Dayasiri MB, Lekamge EL. "Predictors of patient satisfaction with quality of health care in Asian hospitals." Australasian Medical Journal. 2010 Nov 1; 3 (11): p. 739-44.

[12] Okoro RN, Ngong CK. "Assessment of patient's antihypertensive medication adherence level in non-comorbid hypertension in a tertiary hospital in Nigeria." Int J Pharm Biomed Sci. 2012; 3 (2): P.P. 47-54.

[13] Alzolibani AA. "Patient satisfaction and expectations of the quality of service of University affiliated dermatology clinics." Journal of Public Health and Epidemiology. 2011 Feb 28; 3 (2): P.P. 61-67.

[14] Saleem F, Hassali MA, Shafie AA, Awad AG, Bashir S. "Association between knowledge and drug adherence in patients with hypertension in Quetta, Pakistan." Tropical Journal of Pharmaceutical Research. 2011 Apr 1; 10 (2): P.P. 125-132.

[15] Mehta RH, Montoye CK, Faul J, Nagle DJ, Kure J, Raj E, Fattal P, Sharrif S, Amlani M, Changezi HU, Skorcz S. "Enhancing quality of care for acute myocardial infarction: shifting the focus of improvement from key indicators to process of care and tool use: the American College of Cardiology Acute Myocardial Infarction Guidelines Applied in Practice Project in Michigan: Flint and Saginaw Expansion." Journal of the American College of Cardiology. 2004 Jun 16; 43 (12): P.P. 2166-73.

[16] Akhtari-Zavare M, Abdullah MY, Hassan ST, Said SB, Kamali M. "Patient satisfaction: evaluating nursing care for patients hospitalized with cancer in Tehran Teaching Hospitals, Iran." Global journal of health Science. 2010 Apr 1; 2 (1): P. 117.

[17] Oliveira-Filho AD, Barreto-Filho JA, Neves SJ, Lyra Junior DP. "Association between the 8-item Morisky Medication Adherence Scale (MMAS-8) and blood pressure control." Arquivosbrasileiros de cardiologia. 2012 Jul; 99 (1): P.P. 649-58.

[18] Rastogi T, Reddy KS, Vaz M, Spiegelman D, Prabhakaran D, Willett WC, Stampfer MJ, Ascherio A. "Diet and risk of ischemic heart disease in India. The American journal of clinical nutrition." 2004 Apr 1; 79 (4): P.P. 582-92.

[19] Zarei E, Daneshkohan A, Pouragha B, Marzban S, Arab M. "An Empirical study of the Impact of Service Quality on patient Satisfaction in private Hospitals, Iran." Global journal of health science. 2015 Jan 1; 7 (1): P. 1.

[20] Pini A, Sarafis P, Malliarou M, Tsounis A, Igoumenidis M, Bamidis P, Niakas D. "Assessment of Patient Satisfaction of the Quality of Health Care Provided by Outpatient Services of an Oncology Hospital." Global journal of health science. 2014 Sep 1; 6 (5): P.P. 196-203.

[21] Al Sharif BF. "Patients' satisfaction with hospital services at Nablus District, West bank, Palestine." Doctoral dissertation, AL- Najaf National University, 2008: P. 1

[22] Al Emadi N, Falamarzi S, Al-Kuwari MG, Al-Ansari A. 'Patients' Satisfaction with Primary Health Care Services in Qatar." Middle East Journal of Family Medicine. 2009; 7 (9): P.P. 2-35.

[23] Alemu S, Jira C, Asseffa T, Desa MM. "Changes in in-patient satisfaction with nursing care and communication at DebreMarkos Hospital, Amhara region, Ethiopia. "American Journal of Health Research. 2014; 2 (4): P.P. 171-176.

[24] Agosta LJ. "Patient satisfaction with nurse practitioner-delivered primary healthcare services." Journal of the American Academy of Nurse Practitioners. 2009 Nov 1; 21 (11): P.P. 610-7.

[25] Bisiriyu G. "Non-adherence to Lifestyle Modification Recommendations (diet and exercise) among type 2 Diabetes Mellitus Patients attending Extension Clinic in Gaborone, Botswana." Published Thesis. Faculty of Medicine at the University of Limpopo (Medunsa Campus), Republic of South Africa, 2008. P.P. 1-3.

[26] Ko GT, Chan JC, Tong SD, Chan AW, Wong PT, Hui SS, Kwok R, Chan CL. "Associations between dietary habits and risk factors for cardiovascular diseases in a Hong Kong Chinese working population-the Better Health for Better Hong Kong"(BHBHK) health promotion campaign." Asia Pacific journal of clinical nutrition. 2007 Dec 1; 16 (4): P.P. 757-65.

[27] Lee Y, Mittelstaedt R. "Impact of injury level and self-monitoring on free time boredom of people with spinal cord injury. Disability and rehabilitation." 2004 Oct 7; 26 (19): P.P. 1143-9.

[28] Halima DK, Al-Rubaiyee Y. "Assessment of Patients' Adherence to Therapeutic Recommendations after Ischemic Heart Diseases in Al-Najaf City." Kufa Journal for Nursing Sciences| مجلة الكوفة للعلوم التمريضية. 2015 Oct 11; 5 (2).

[29] Giannakopoulou G, Tsironi M, Prezerakos P, Fotis T, Giannakopoulou E, Zyga S. Surgical patient satisfaction: nursing care quality index. Original Article. 2010:14-20.

[30] Sreenivas T, Babu NS. "A study on patient satisfaction in hospitals (A Study on Three Urban Hospitals in Guntur District, Andhra Pradesh)." International journal of Management Research &Bussiness Strategy. 2012 Oct; 1 (1): P.P. 101-118.

[31] Tang WM, Soong CY, Lim WC. "Patient satisfaction with nursing care: a descriptive study using interaction model of client health behavior." International Journal of Nursing Science. 2013; 3 (2): P.P. 51-56.

[32] Al-Hussein RA, Khaleel MA. "Assessment of Patients Satisfaction Regarding Nursing Care Provided at General Hospitals in Al-Najaf City." Kufa Journal for Nursing Sciences| مجلة الكوفة للعلوم التمريضية. 2015 Nov 18; 5 (3): P.P. 26-27.

[33] Shinde M, Kapurkar K. "Patient's Satisfaction with Nursing Care Provided in Selected Areas of Tertiary Care Hospital." International Journal of Science and Research. 2014 Feb; 3 (2): P. 150-151-152-161.

[34] Javed, A. "Patient Satisfaction Towards Out Patient Department Services In Pakistan." Institute of Medical Sciences, Islamabad; The Degree Of Master Of Primary Health Care Management Faculty Of Graduate Studies Mahidol University, (2005).

[35] AL-Biaty DK. "Assessment of Factors Affecting on Patients' Adherence to Therapeutic Recommendations after Ischemic Heart Diseases in Al-Najaf City." J. Clin. Exp. Med. Res. 2014; 2 (3): P.P. 353-364.

[36] Brown JR, Malenka DJ, DeVries JT, Robb JF, Jayne JE, Friedman BJ, Hettleman BD, Niles NW, Kaplan AV, Schoolwerth AC, Thompson CA. "Transient and persistent renal dysfunction are predictors of survival after percutaneous coronary intervention: insights from the Dartmouth Dynamic Registry." Catheterization and Cardiovascular Interventions. 2008 Sep 1; 72 (3): P.P. 347-54.

[37] Taylor AJ, Hotchkiss D, Morse RW, McCabe J. "PREPARED: Preparation for Angiography in Renal Dysfunction: a randomized trial of inpatient vs outpatient hydration protocols for cardiac catheterization in mild-to-moderate renal dysfunction." Chest. 1998 Dec 31; 114 (6): P.P. 1570-4.

[38] Villarruz-Sulit MV, Dans AL, Javelosa MA. "Measuring satisfaction with nursing care of patients admitted in the medical wards of the Philippine General Hospital." ActaMedicaPhilippina. 2009 Dec 1; 43 (4): P.P. 52-56.

[39] Singh S, Kaur P, Rochwani R. "Patient satisfaction levels in a tertiary care medical college hospital in Punjab, North India." Int J Res Dev Health. 2013 Nov; 1 (4): P.P. 172-82.

[40] Joshi K, Sochaliya K, Purani S, Kartha G. "Patient satisfaction about health care services: a cross sectional study of patients who visit the outpatient department of a civil hospital at Surendranagar, Gujarat." International journal of medical science and public health. 2013; 2 (3): P.P. 659-663.

[41] Qadri SS, Pathak R, Singh M, Ahluwalia SK, Saini S, Garg PK. "An assessment of patients satisfaction with services obtained from a tertiary care hospital in rural Haryana." International Journal of Collaborative Research on Internal Medicine & Public Health. 2012; 4 (8): P.P. 1524-1537.

[42] Mukhlif HH. "Assessment of Adult Patients Satisfaction with the Nursing Care in the Public Teaching Hospitals of Mosul City." Kufa Journal for Nursing Sciences| مجلة الكوفة للعلوم التمريضية. 2015 Nov 17; 4 (2).

[43] Ibrahim A. "patient satisfaction with health services at the outpatient department of Indira Gandhi memorial, Hospital, male'maldives copyright of mahidol university. 2008 march 13: P. 4.

[44] Sa'adoon AA, Hussien AH, Museher TR. "Patients' satisfaction for health care services at Thi-qar province, Iraq." Thi-Qar Medical Journal. 2008; 2 (1): P.P. 38-45.

[45] Mandokhail AK, Keiwkarnka B, Ramasoota P. "Patient satisfaction towards out patient department (OPD) services of medicine department in Banphaeo community hospital SamutSakhon Province, Thailand." Journal of Public Health and Development. 2007; 5 (3): P.P. 14-15-16-98-99-100-101-102-103.

[46] Joy, L. "A study to assess the patient satisfaction with nursing care in neuro medical units." SCTIMST. 2011 Oct: P.P. 1-4.

[47] Narenjiha M, Haghighat S, Bahaddor H, Shajari J, Jameie SB. "The Importance of Physicians' Communication Skills and Patients' Satisfaction." Thrita Journal of Medical Sciences. 2012 Dec; 1 (2): P.P. 57-61.

[48] Bener A, Ghuloum S. "Gender difference on patients' satisfaction and expectation towards mental health care." Nigerian journal of clinical practice. 2013 Sep 10; 16 (3): P.P. 285-91.

[49] Ganasegeran K, Perianayagam W, Abdul Manaf R, Ali Jadoo SA, Al-Dubai SA. "Patient Satisfaction in Malaysia's Busiest Outpatient Medical Care." The Scientific World Journal. 2015 Jan 12; 2015.

[50] Al-Sakkak MA, Al-Nowaiser NA, Al-Khashan HI, Al-Abdrabulnabi AA, Jaber RM. "Patient satisfaction with primary health care services in Riyadh." Saudi medical journal. 2008; 29 (3): P.P. 432-6.

[51] Nuha H. Al- Assaf. "Factors Related to Patient Satisfaction with Hospital Health Care." Iraqi J. Comm. Med. 2009 Oct; (4): P. 221.

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