RESEARCH ARTICLE

THE ASSESSMENT OF PATIENT KNOWLEDGE REGARDING COMPLIANCE FACTORS OF HEART FAILURE

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ARTICLE INFO	ABSTRACT
	Background: Heart failure is a dominant cause of deaths now a day as there are tremendous contributing factors that cause it so that it is a component of concern in these days as it cost health, life as well as expense too. Different remedies either they are pharmacological or non-pharmacological use to prevent. Factors that are in hand of patient that we called patient related factors are very important to know in order to prevent heart failure**. Aim:** The purpose of the study is to discuss the patient knowledge regarding contributing factor of heart failure **Design**: The study type is descriptive cross sectional**. Technique:** A self-administered question was used to collect data that was analyzed by special method, sample size was determine by using special formula that is SPSS version 21. **Results:** Results shows that most of the patient are complained toward heart disease like heart failure but there is a strong variation between different age group, level of education as well as differences in gender .but there is strong need of further assessment as well as education regarding factors that cause heart failure as well as preventive measure that will further enhance compliance.

INTRODUCTION

Heart failure is major health care problem not only for patient, for family and society. It affects nearly 6.5 million people in Europe five million people in the USA 2.4 million people in Japan. Overall it appears that Heart failure affects 1-3% of the general population and 10% of the elderly. Hospital admission and costs for heart failure have increased over the past two decades to the point where heart failure now 2% of total care expenditure (Mcmurray *et al.,* 2002). The complex Heart Failure regimen consist of pharmacological and non-pharmacological treatment according to recent Heart Failure guidelines of European society of cardiology and the heart failure society of America multiple medication should be prescribed at an optimal dose non pharmacological treatment consist life style recommendation. The most important one are sodium restricted diet, fluid restriction, symptom monitoring by daily weighing and maintains of physical activity (Linden field *et al.,* 2010). The joint commission accreditation of health care organizations & American heart association American college of cardiology have developed guidelines for the care of patient with heart failure which can be applied to the heart failure patient at both the inpatient and outpatient level. One particular guideline emphasized strongly by both the joint commission and American heart association is the process of providing heart failure education to the patient prior to discharge from hospital (Huntetal; 2009).

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The aim of the present study was to determine which variables were related to compliance among heart failure patient.

Literature Review: In this study, only patient related factors are included. Important patient related factors that are known to be related to compliance are, knowledge on heart failure and the heart failure regimen, benefits and barriers about heart failure regimen, and clinical demographic factors, including age, gender, marital status, educational level, severely of the disease and depressive symptoms. Although knowledge alone does not insure compliance, patient can only comply when they possess some minimal knowledge about disease and the health care regimen (Dimatter *et al.*). According to the health belief model, attitude and beliefs of individual can explain health behavior important constructs of the model are perceived benefits and barriers about the health care regimen. Most often, the primary provider of this information is the registered nurse, who verbally reviews this information with the patient and family prior to discharge, as well as providing a written copy. Lack of adherence to these guidelines is often cited as a reason for hospital readmission of the heart failure patient; however, noncompliance has also been attribute to a lack of patient understanding of the provided information (Jessup *et al.,* 2009). Heart failure is a chronic, irreversible process that primarily affects older populations, with incidence growing at an alarming rate due to the accelerating age of the United States population (Albert *et al.,* 2002). An estimated 5.8 million people in the United States are living with heart failure, with an additional 670,000 people diagnosed each year

centers for disease control. In industrialized nations worldwide, it is estimated that 1% to 2% of the total population is living with heart failure, and that treating heart failure consumes nearly 1% to 2% of total health care resource, and these figures are only expected to increase as time goes on. Possibly contributing to the increased incidence of heart failure is the decreased mortality associated with coronary artery disease. Heart failure is a large economic burden on the United States due to the frequent hospitalizations that these patients endure (Stromberg, 2002). Hospitalization has been estimated to be the largest cost burden on patients with heart failure, as well as a large societal economic burden (Linne *et al.*, 2000). Heart failure accounts for 2% of all hospitalizations annually in the United States (Ferguson, 2010). It was estimated that heart failure cost the United States nearly $39.2billion dollars in the year 2010 most of which will be spent on health care services, medications, & lost productivity. It has also been reported that Medicare spends more money on heart failure treatment than it does on MIs and all forms of cancer combine (Massie & Shaw, 1997, p. 710). These statistics underscore the need for quality care for all patients who are diagnosed with heart failure, as well as highlight the economic burden that will continue to plague the United States should effective means of managing heart failure not be established.

The assessment of patient knowledge regarding compliance factors
Of heart failure;
Objective;
To access the knowledge of patient regarding compliance factors of heart failure.
Research Question
What is the level of patient knowledge regarding compliance factors of heart failure?

Problem statement: Nurses play a key role in educating patients on the fundamentals of heart failure management. This education empowers patients to effectively manage their heart failure at home and ultimately prevents hospital readmission. Increase educational level, will enhance better results.

MATERIALS AND METHODS

Introduction: This study is conducted to assess the knowledge of the patient regarding heart failure.

Study design: A descriptive cross sectional research design will be used for this study to assess the knowledge of patient regarding heart failure.

Setting: Setting of the study will be the Superior University Nursing of Lahore Campus Kalmachowk Lahore.

Target population: My target population will be the patient of cardiac department of Social Security Hospital Multan chungi Lahore, The patient will be belong to different socioeconomic level and different demographical background, the patient will be male and female.

Sample Size and sampling techniques: Data will be collected from the patient for cardiac department through self-administered Questionnaire and will be selected through simple random sampling method, the sample size for this study will be 133 which is calculated from the *Slovins formula of sampling* which is mentioned here.

If Total number of patient 200

If N=Population,

n=Sample size,
E= Margin of error
$n = N/1 + (N)(E)^2$
$n = 200/1 + (200)(0.05)^2$
$n = 200/1 + (200)(0.0025)$
$n = 200/2.25 = 133$

Research tool: A self-administered and modified version questionnaire was adopted from the article "Compliance in heart failure patient the importance of knowledge and belief" written by M.H.L. van der Wal et al. Questionnaire is consist of three sections, (Section A) composed of demographic data which include Name (optional) Age, Gender, institute, department, semester and information about the. (Section B) composed of the questions regarding the assessment of knowledge. A pilot study of the questionnaire will be done before floating the questionnaire in the participants.

Data Collection Plan: Data collection plan is one of the main sources to collect data. A self-administered questionnaire will be used to collect data from the cardiac patient. There will be given a free hand to complete it and return it.

Data Analysis: Data analysis will be done by SPSS version 20.Statistical computer software for data analysis. This is a descriptive study and all the descriptive statistics will be obtained through the SPSS software

Including Criteria

- All patient from cardiac department Social Security Hospital Multan chungi Lahore male and female
- Willing to participate
- Those who understands English

Excluding Criteria

- Students other than Pharmacy, DPT, Nursing, and IMBB mentioned departments
- Students other than DPT 8th semester, Nursing BScN Generic semester 8th and 5th and Post RN semester 4th Students who are already graduated from university of Lahore
- Students outside from university of Lahore

Time Framework: This study will approximately take 2-3 months.

Informed Consent: Consents will be taken from all the participants and free hand will be given to the participants to take part in the study or refused to participate, participants will have also be the right to mentioned name or not.

Ethical consideration: Enough information of research will be provided to participants with help of full consent and this will be achieved via a consent form attach to the questionnaire. Confidentiality will be considered by informing participants. The right of participants will be protected by Nuremberg Code of Ethics.

RESULTS

Table 1.

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	75	56.4	56.4	56.4
	Female	58	43.6	43.6	100.0
	Total	133	100.0	100.0	

Interpretation: According to table and Figure, the majority of respondents (56%) reported to be male as opposed to (43%) female. Figure reveals that most of respondents were males to Females in contrast were more dominant than males in the categories.

Table 2.

Marital Status		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	99	74.4	74.4	74.4
	Unmarried	34	25.6	25.6	100.0
	Total	133	100.0	100.0	

Interpretation: Table No. 2 indicate that out of 133responder 99 were married at 34 were unmarried.

Table 3.

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	7	5.3	5.3	5.3
	25-35	51	38.3	38.3	43.6
	35-50	63	47.4	47.4	91.0
	above50	12	9.0	9.0	100.0
	Total	133	100.0	100.0	

Interpretation: According to above table and Figure, just more than a third (47%) of the respondents in the age group 35-50 years reported to be knowledge, followed by 38% of those in the 25-35 years age category l This is no surprise given the fact that the majority of the knowledge people in the country fall in the youth category.

Table 4.

Qualification		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Metric	54	40.6	40.6	40.6
	Fa/Fsc	46	34.6	34.6	75.2
	Others	33	24.8	24.8	100.0
	Total	133	100.0	100.0	

Interpretation: Most of the respondents interviewed represented the community, social and personal services industry, for the matric (40%) and FSC (34%) and the other 24%. All the respondent have directly or indirectly followed by the wholesale and retail industry, finance, construction, manufacturing and private households, agriculture, mining and transport and electricity industries.

Table 5.

Medication At Admission		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ACE inhibitor	75	56.4	56.4	56.4
	Beta blocker	30	22.6	22.6	78.9
	Spironolactone	5	3.8	3.8	82.7
	Digoxin	23	17.3	17.3	100.0
	Total	133	100.0	100.0	

Interpretation; Table no 5 indicate that 76(56.4%) respondent were using ACE inhibitor, 30(22.6%) beta blocker, 5(3.8%) spironolactone, 23(17.3%) using digoxin at the time of admission.

Table 6.

Previous Heart Failure Admission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No admission	46	34.6	34.6	34.6
	1	77	57.9	57.9	92.5
	>1	10	7.5	7.5	100.0
	Total	133	100.0	100.0	

According to this table 46(34.6%) respondent had no admission,77(57.9%)had previous one admission and 10(7.5%)had more than 1 admission.

Table 7.

Knowledge		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-9	43	32.3	32.3	32.3
	10-13	78	58.6	58.6	91.0
	14-15	12	9.0	9.0	100.0
	Total	133	100.0	100.0	

Interpretation; As shown in above table and figure the knowledge of the respondents are high at 10-13 and after that 0-9 which is lower as the rate of 14-15, This is a cause for concern as the matric certificate is regarded as a key which opens doors to further education therefore securing employment prospects l There was a sizeable proportion of respondents regarding knowledge of 10-13.

Table 8.

How often should patient with severe heart failure weigh themselves?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Every week	33	24.8	24.8	24.8
	Now and then	13	9.8	9.8	34.6
	Every day	87	65.4	65.4	100.0
	Total	133	100.0	100.0	

Interpretation; this table indicates 33(24.8%) respondent weigh themselves every week, 13(9.8%) weigh themselves now and then, 87(65.4%) weigh themselves every day.

Table 9.

Why is it important that patient with heart failure weigh themselves?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Because many patient with heart failure have a poor appetite	26	19.5	19.5	19.5
	To check whether the body is retaining fluid	86	64.7	64.7	84.2
	To assess the right dose of medicine	21	15.8	15.8	100.0
	Total	133	100.0	100.0	

Interpretation; According to this table 26(19.5%) respondent were answered, many patient with heart failure have poor appetite, 86(64.7%)to check whether the body is retaining fluid,21(15.8%)answered to assess the right dose of medicine.

Table 10.

How much fluid are you allowed to take at home each day?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.5 to 2.5 liters at then most	14	10.5	10.5	10.5
	as little fluid as possible	89	66.9	66.9	77.4
	as much fluid as possible	30	22.6	22.6	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate that 14(10.5%) respondent were using 1.5to 2.5 liters add then most, 89(66.9%) were

using as little fluid as possible, 30(22.6%) were using as much fluid as possible.

Table 11.

Which of these statements is true		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	When I cough a lot, it is better not to take my heart failure medicine	5	3.8	3.8	3.8
	When I am feeling better I can stop taking my medicine for heart failure	39	29.3	29.3	33.1
	It is important that i take my heart failure medication regularly	89	66.9	66.9	100.0
	Total	133	100.0	100.0	

Interpretation ; This table indicate 5(3.8%)answered when I cough a lot, it is better not to take my heart failure medicine,39(29.3%)answered when I am feeling better I can stop my medicine of heart failure,89(66.9%)answered it is important that I take my heart failure medicine regularly.

Table 12.

What is the best thing to do in case of increased shortness of breath or swollen legs?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Call the doctor or the nurse	91	68.4	68.4	68.4
	Wait until the next checkup	29	21.8	21.8	90.2
	Take less medicine	13	9.8	9.8	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 91(68.4%0 respondent answered all the doctor or nurse, 29(21.8%) answered wait until the next checkup. 13(9.8%) were answered take less medicine.

Table 13.

What can cause a rapid worsening of heart failure symptoms?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A high fat diet	55	41.4	41.4	41.4
	A cold or the flu	68	51.1	51.1	92.5
	Lack of exercise	10	7.5	7.5	100.0
	TOTAL	133	100.0	100.0	

Interpretation; This table indicate 55(41.4%) respondent answered a high fat diet, 68(51.1%) answered a cold or the flue, 10(7.5%) answered lack of exercise.

Table 14.

What does heart failure mean?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	That the heart is unable to pump enough blood around the body	89	66.9	66.9	66.9
	That someone is not getting enough exercise and is in poor condition	21	15.8	15.8	82.7
	That there is a blood clot in the blood vessels of the heart	23	17.3	17.3	100.0
	Total	133	100.0	100.0	

Interpretation; this table indicates 89(66.9%) respondent answered that heart is unable pump enough blood around the body, 21(15.8%) respond that someone is not getting enough exercise is in poor condition, 23(17.3%) respond that there is blood clot in the blood vessels in the heart.

Interpretation; This table indicate 29(21.8%) respondent were answered, because valves in the blood vessels of the legs do not function properly, 40(30.1%) respond, because the muscles in the legs are not getting enough oxygen, 64(48.1%) respond, because accumulation of fluid in the legs.

Table 15.

Why can the leg swell up when you have heart failure?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Because the valves in the blood vessels in the legs do not function properly	29	21.8	21.8	21.8
	because the muscles in the legs are not getting enough oxygen	40	30.1	30.1	51.9
	because of accumulation of fluid in the legs	64	48.1	48.1	100.0
	Total	133	100.0	100.0	

Table 16.

What is the function of the heart?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To absorb nutrients from the blood	17	12.8	12.8	12.8
	To pump blood around the body	99	74.4	74.4	87.2
	To provide the blood with oxygen	17	12.8	12.8	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 17(12.8%) respondent answered to absorb nutrient from the blood, 99(74.4%) respond to pump blood around the body, 17(12.8%) respond to provide the blood with oxygen.

Table 17.

Why should someone with heart failure follow a low salt diet?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	salt promotes fluid retention	74	55.6	55.6	55.6
	salt causes constriction of the blood vessels	28	21.1	21.1	76.7
	salt increase the heart rate	31	23.3	23.3	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 74(55.6%) respondent answered salt promote fluid retention, 28(21.1%) respond salt causes construction of blood vessels. 31(23.3%)respond salt increase the heart rate.

Table 18.

what are the main causes of heart failure		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A myocardial infarction and high blood pressure	90	67.7	67.7	67.7
	Lung problem and allergy	23	17.3	17.3	85.0
	Obesity and diabetes	20	15.0	15.0	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 90(67.7%) respondent response myocardial infarction and high blood pressure, 23(17.3%) response lung problem and allergy, 20(15%) response to obesity and diabetes.

Table 19.

Which statement about exercise for people with heart failure is true?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	it is important to exercise as little as possible at home in order to relieve the heart	62	46.6	46.6	46.6
	it is important to exercise at home and to rest regularly in between	35	26.3	26.3	72.9
	it is important to exercise as much as possible at home	36	27.1	27.1	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate that 62(46.6%)people respond, it is important to exercise as little as possible at home in order to relieve the heart, 35(26.3%) response it is important to exercise to at home and do rest regularly between,

36(27.1%) response it is important to exercise as much as possible at home.

Table 20.

Why are water pills prescribed to someone with heart failure?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	to lower the blood pressure	25	18.8	18.8	18.8
	to prevent fluid retention in the body	103	77.4	77.4	96.2
	because then they can drink more	5	3.8	3.8	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 25(18.8%) respondent response to the lower blood pressure,103(77.4%)response to prevent fluid retention in the body,5(3.8%)response then they can drink more.

Table 21.

Which statement about weight increase and heart failure is true?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	an increase of over 2 kilograms in 2 or 3 days should be reported to the doctor at the next check up	30	22.6	22.6	22.6
	in case of an increase of over 2 kilograms in 2 or 3 days you should contact your doctor or nurse	81	60.9	60.9	83.5
	in case of an increase of over 2 kilograms in 2 or 3 days you should eat less	22	16.5	16.5	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 30(22.6%) respondent answered and increase of over 2kilogram in 2 or 3 days should be reported to the doctor at next checkup, 81(60.9%) answered in case of an increase of over 2 kilogram in 2 or 3 days you should contact your doctor or nurse, 22(16.5%) answered in case of increase of over 2 kilogram in 2 or 3 days you should eat less.

Table 22.

What is the best thing to do when you are thirsty?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	suck an ice cube	89	66.9	66.9	66.9
	suck a lozenge	26	19.5	19.5	86.5
	drink a lot	18	13.5	13.5	100.0
	Total	133	100.0	100.0	

Interpretation; This table indicate 89(66.9%) respondent answered suck an ice cubes, 26(19.5%) response suck a lozenge, 18(13.3%) answered drink a lot.

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
qualification * knowledge	133	100.0%	0	0.0%	133	100.0%

qualification * knowledge Cross tabulation			knowledge			Total
			0-9	10-13	14-15	
Qualification	metric	Count	14	35	5	54
		% within qualification	25.9%	64.8%	9.3%	100.0%
	Fa/Fsc	Count	14	27	5	46
		% within qualification	30.4%	58.7%	10.9%	100.0%
	others	Count	15	16	2	33
		% within qualification	45.5%	48.5%	6.1%	100.0%
Total		Count	43	78	12	133
		% within qualification	32.3%	58.6%	9.0%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.924[a]	4	.416
Likelihood Ratio	3.833	4	.429
Linear-by-Linear Association	2.612	1	.106
N of Valid Cases	133		
a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is 2.98.			

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
age * knowledge	133	100.0%	0	0.0%	133	100.0%

age * knowledge Cross tabulation			knowledge			Total
			0-9	10-13	14-15	
age	18-25	Count	2	5	0	7
		% within age	28.6%	71.4%	0.0%	100.0%
	25-35	Count	20	26	5	51
		% within age	39.2%	51.0%	9.8%	100.0%
	35-50	Count	16	43	4	63
		% within age	25.4%	68.3%	6.3%	100.0%
	above50	Count	5	4	3	12
		% within age	41.7%	33.3%	25.0%	100.0%
Total		Count	43	78	12	133
		% within age	32.3%	58.6%	9.0%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.608[a]	6	.142
Likelihood Ratio	9.388	6	.153
Linear-by-Linear Association	.854	1	.356
N of Valid Cases	133		
a. 6 cells (50.0%) have expected count less than 5. The minimum expected count is .63.			

DISCUSSION

In our study, we tend to analyze the data of a patient regarding his illness that influences compliance with medical directions and perception of the standard of life (Quality of Life). These factors, though terribly subjective, will powerfully have an effect on a physician's cooperation with a Congestive Heart Failure patient. Congestive Heart Failure decreases Quality of Life and survival prognosis the same as cancer. Thus, we tend to set to style a no standardized survey, rather than exploitation already existing standardized questionnaires, in such how that the patients might freely select that a part of the treatment and communication ought to be improved. The young and therefore the delicate Congestive Heart Failure patients tend to believe Congestive Heart Failure to be curable, whereas the previous and people with severe Congestive Heart Failure were a lot of skeptical. It's admire the information obtained by van der Wal et al – the older patients, with frequent hospitalizations, attended understand their illness a lot of negatively. Surprisingly, in our study, thirty seventh patients with I–II New York Heart Association category and pure gold patients categoryified as III–IV New York Heart Association class perceived Congestive Heart Failure as curable, as compared with among the van der Wal subjects. In this study, we tend to found that compliance with medication associate degreed appointment keeping was amazingly high in an older Heart Failure population. However, compliance with diet, fluid restriction, and particularly compliance with recommendation concerning activity and daily consideration was low. Though solely compliance with consideration behavior and fluid restriction was relating to data, several patients within the study reported a data deficit relating to HEART FAILURE and therefore the HEART FAILURE programme, significantly diet, fluid restriction, and daily consideration. It's a serious challenge for health care suppliers to boost data of HEART FAILURE patients on these subjects. Though data is vital to

boost compliance, data alone isn't enough to confirm compliance. Methods to boost compliance ought to, therefore, not solely be directed at increasing patients' data, however conjointly at dynamic beliefs regarding the programmer. Therefore, interventions that may improve perceptions of advantages and scale back barriers to the Herat failure programmer ought to be developed and tested.

Limitation

- In this study it is difficult to collect data from patients. They were non-cooperative.
- It is difficult to find out whether patient had actually prescription or received advice on regimen.
- There was difficulty to search the questionnaire for the study.

Recommendation

- There are need for further study to improve the communication between the patient and health care provider to understand and solve the problem of heart failure patient.
- It is major challenge for health care providers to improve compliance in heart failure patient to identify the risk factor and complication of heart failure and identify desirable treatment.

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