

Factors Affecting Adherence to Therapeutic Regimens among Patients with cardiac valve Replacement

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Abstract

Background: Adherence is a dynamic, multidimensional process in which many factors play a part. The patients understanding of the surgical procedure, informed consent, and adherence to treatment protocols are evaluated. Helping the patient to cope, understand the procedure, and maintain dignity are nursing responsibilities. **Aim:** This study aimed to assess factors affecting adherence to therapeutic regimens among patients with cardiac valve replacement. **Design:** A descriptive exploratory design was conducted to achieve aim of this study. **Setting:** the study was carried out in cardiac surgery outpatient clinic at Suez Canal University Hospitals. **Subjects:** A Purposive sample of 70 patients admitted in the previous mentioned setting. **Tools:** four tools were used to collect the study data. Interview questionnaire sheet, adherence scale ,hospital anxiety and depression scale ,Factors affecting adherence to therapeutic regimen. **Results:** more than half of studied patients had satisfactory level of knowledge. More than half of studied patients had adhered level of adherence to therapeutic regimen. More than half of studied patients' had abnormal level of anxiety,the study revealed that, 74.4% of studied patients' were affect regarding factors, while, 21.6% of studied patients were not affect regarding factors.**Conclusion:** There was significant relation between total adherence and medical factors. **Recommendations:** Replication of the study on longer sample to be able generalize the result study.

Keywords: Factors, Adherence, Therapeutic regimen, cardiac valve replacement.

Introduction

Valvular heart disease (VHD) is a major health problem afflicting the elderly in particular. VHD occurs due to congenital defects or because of acquired pathology. Calcific aortic valve disease (CAVD) is initiated as aortic valve sclerosis (AVSc), which is a mild thickening of the valve, to aortic valve stenosis (AVS), which results in severe impairment of the valve motion. (*Lincoln & Garg, 2014*).

Valvular heart disease (VHD) is caused by either damage or defect in one of the four heart valves, aortic, mitral, tricuspid or pulmonary. Defects in these valves can be congenital or acquired. Age, gender, tobacco use, hypercholesterolemia, and type II diabetes contribute to the risk of disease. VHD is an escalating health issue with a prevalence of 2.5% in the United States alone (*Gaede, et al, 2016*).

Adherence is a dynamic, multidimensional process in which many factors play a part. Demographic, psychological, and social factors have been

associated with adherence. Therapeutic education has also proven to be an essential component of adherence to self-care, but that alone does not guarantee patients full involvement. For all these reasons, it is important to be able to implement strategies that support behavior change (*Alvarado & Dácil, 2019*).

The reasons for non-adherence are multifactorial and difficult to identify. They include age, information, perception and duration of the disease, complexity of the dosage regimen, poly-therapy, cognitive factors, tolerability, clinical inertia, socioeconomic problems, culture, patient education and beliefs, social support and polypharmacy (*Settineri & Salvatore, 2019*).

Aim of the study

This study aimed to assess level of adherence to therapeutic regimens and factors affecting adherence to therapeutic regimens among patient with cardiac valve replacement.

Research question:

What is the level of adherence to therapeutic regimens among patients with cardiac valve replacement?

What are the factors affecting adherence to therapeutic regimens among patients with cardiac valve replacement?

Subject and methods

The subject and methods for the current study were portrayed under the four main designs as the following:

- I. Technical design.
- II. Operational design.
- III. Administrative design.
- IV. Statistical design.

I) Technical design:

The technical design included research design, setting, subjects and tools of data collection used in this study.

Research design:

A descriptive exploratory design was conducted to achieve aim of this study.

Setting:

This study was conducted in cardiac surgery outpatient clinic at Suez Canal University Hospitals.

Subjects:

- Purposive sample of 70 patients admitted to the previously mentioned setting.
- Inclusion criteria: Adult patients more than 18 years, from gender, with cardiac valve replacement and accepting to participate in the study.

Tools of data collection:

Four tools were used to collect necessary data to fulfill the study aim.

Tool (1):- Patients' interview questionnaire:

This tool was developed by the researcher after reviewing the related literature. It included 3 parts:

Part(I):- Demographic characteristic questionnaire:

It was used to assess demographic characteristic of the studied patients (age, gender, level of education, occupation).

Part (II): Assess clinical data of patients: It was used to assess present and past medical history and family history to patients.

Part (III): Patient level knowledge Interview questionnaire:

It was used to assess level of patients' knowledge about cardiac valve replacement to therapeutic regimen. It included (Definition, complication, medication, diet, physical exercise, rest and sleep, and follow up).

Tool (2):- Adherence scale:

• was developed by researcher in Arabic language based on the related literature review (*WHO, 2017*). it concerned with assessment of patients of level adherence regarding to the therapeutic

regimen among patients with cardiac valve replacement.

- **Scoring system:**

The responses were measured on a three-point Likert scale and polarized in (1 = all times, 2= sometimes, 3= never). Scores of the statement of each component were summed-up, converted into percent score, and the total divided by the number of the items, giving a mean score for each component. The adherence level was considered adhered if percent score equal 60% or more and not adhered if less than 60%.

Tool (3):- Hospital Anxiety and Depression Scale: This tool was adopted from (*Bjelland, 2002*).it was used to asses level of anxiety & depression for patients with cardiac valve replacement.

- **Scoring system:**

The responses were measured on a four-point Likert scale and polarized in (0 = never, 1= not more, 2= sometimes, 3= most time). Scores of the statement of each component were summed-up, converted into percent score, and the total divided by the number of the items, giving a mean score for each component.

Tool (4):- Medical and Socio-economic factors affecting adherence to therapeutic regimens: It concerned with assessment factors affecting adherence to therapeutic regimens among patients with cardiac valve replacement, (*WHO, 2017*).

- **Scoring system:**

Scores of the statement of each component were summed-up, converted into percent score, and the total divided by the number of the items, giving a mean score for each component. Medical and Socio-economic factors affecting adherence to therapeutic regimens level was considered affect if percent score equal 60% or less and not affect if more

than 60%.

Content validity and reliability

Content validity (refers to how well a scientific test actually measures what it is intended to measure) of the proposed tools was done using face and content validity. Face validity aimed at inspecting the items to determine whether the tools measure what supposed to measure. Content validity was conducted to determine whether the content of the tools cover the aim of the study. Validity tested through by a jury of 7 experts. The tools reviewed for clarity, relevance, comprehensiveness, simplicity and applicability, minor modification was done.

Testing reliability (refers to the extent to which the same answers can be obtained using the same instruments more than one time). Reliability of the developed tools was tested using alpha Cronbach model which is a model of internal consistence. The result of patients' knowledge questionnaire was.748, Miller-Smith lifestyle questionnaire was.698, lifestyle questionnaire was.783.

Pilot study:-

A pilot study was conducted to test feasibility and applicability of the study tools used in this study. It was carried out on 10% of patients (7 patients) with cardiac valve replacement in the previous mentioned setting. No modifications were done

Field work:

The researcher explained the purpose of the study to patients included in the study. The actual work of this study started and completed within six months from beginning of June To the end of November (2020). Patients' oral consent to participate in the study obtained and

every patient was informed that confidentiality was assured. Data were collected by the researcher two days per week, at morning and afternoon shifts in the previous mentioned setting.

III-Administrative design:

An official letter was issued from the Faculty of Nursing Ain-Shams University to the director of Suez Canal University Hospitals at which the study was conducted, explaining the purpose of the study and requesting the permission for data collection from the study group.

IV-Statistical design:

All Data were collected, tabulated and subjected to statistical analysis, which is performed by SPSS in general (version 17). While Microsoft office Excel is used for data handling and graphical presentation. The statistical analysis included; number (No.), percentage (%), the arithmetic mean (\bar{X}), standard deviation (SD) and chi-square (χ^2).

The observed differences and associations were considered as follows:

- $P > 0.05$ insignificant difference (No difference).

- $P \leq 0.05$ significant difference

- $P \leq 0.001$ highly significant difference

- Standard Deviation (SD) and arithmetic mean (\bar{X}) were used for quantitative data.

Results

Table (1) showed that, 38.6% of the studied patients were in age group ≥ 48 years with mean age 41 ± 6.25 . 52.9% of the studied patients were males, 72.9% were married. Also, this table shows that 48.6% of the studied patients had secondary education, 52.9% were

governmentally employed and 77.1% reported that they had enough income. In addition, 55.7% of the studied patients living in rural areas, 85.7% living with their families. 97.2% of the studied patients reported that they received knowledge and skills about self-care.

Figure (1) illustrated that 62.8% of the studied patients had satisfactory level of knowledge while 37.2% of them had unsatisfactory level of knowledge about cardiac valve replacement.

Figure (2) 82.8% satisfactory level of adherence of studied patients regarding to sleep and rest. While, 35.8% unsatisfactory level of adherence of them regarding to medication.

Table (2) In relation to anxiety, shows that, 45.7% of the studied patients were never feel restless. Also, 71.4 % were can sit at ease and feel relaxed, and 62.9 % were sometimes get a sort of frightened feeling. While 8.6% get sudden feelings of panic respectively. Regarding depression, also shows that, 62.9% of the studied patients were never feel cheerful. Also, 77.1% were not more can laugh and see the funny side of things respectively. While 41.4 % were sometimes lost interest in appearance and 5.7% most time enjoy the things used to enjoy respectively.

Table (3) shows that, all of the studied patients were answered all questions from treating physician use simple expression to explain instruction respectively. While, 90.0% no response regarding nursing staff use different teaching methods and booklets respectively.

Table (4) shows that, there is a statistically significant difference between total knowledge level of the studied patients and their age, gender, educational level and receiving

knowledge / skills. While, there is no statistically significant difference between total knowledge level of the

studied patients and their marital status, occupation and residence.

Table (1): Frequency and percentage distribution of socio-demographic characteristics of the studied patients (n=70).

Items	N	%
Age (in years)		
18 - < 28	3	4.3
28 - < 38	23	32.9
38 - < 48	17	24.3
≥ 48	27	38.6
<i>Mean ± SD</i>	41±6.25	
Gender		
Male	37	52.9
Female	33	47.1
Marital status		
Single	19	27.1
Married	51	72.9
Educational level		
Not read/write	3	4.3
Read and write	8	11.4
Secondary education	34	48.6
University education	25	35.7
Occupational status		
Free work	15	21.4
Governmental work	37	52.9
No work	18	25.7
Monthly income (from patients view)		
Enough	54	77.1
Not enough	16	22.9
Residence		
Rural	39	55.7
Urban	31	44.3
With whom does patient live (coexistence)		
Alone	10	14.3
With family	60	85.7
Receiving knowledge or skills about self-care		
Yes	68	97.2
No	2	2.8

Figure (1): Total knowledge level of the studied patients about cardiac valve replacement (n=70).

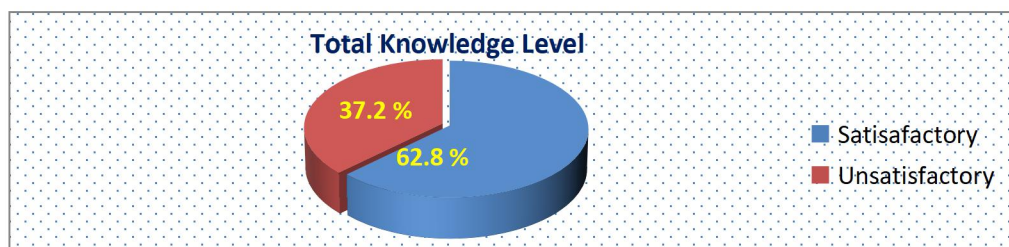
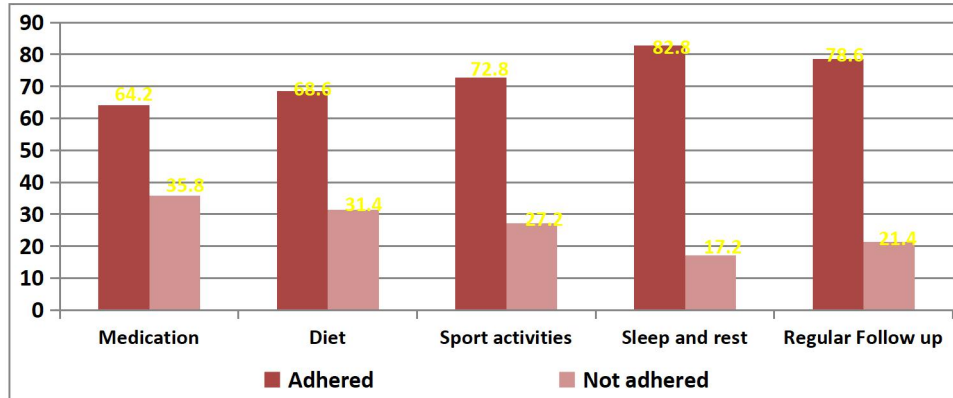


Figure (2): Frequency and percentage distribution of patients level of adherence regarding therapeutic regimen (n= 70).



Table(2): Frequency and percentage distribution of patients under study regarding psychological status (n= 70).

Psychological status	Never		Not more		Sometimes		Most time	
	NO	%	NO	%	NO	%	NO	%
Anxiety								
feel tense or 'wound up'	6	8.6	41	58.6	18	25.7	5	7.1
get a sort of frightened feeling as if something awful is about to happen	9	12.9	15	21.4	44	62.9	2	2.8
Worrying thoughts go through my mind	13	18.6	20	28.6	32	45.7	5	7.1
can sit at ease and feel relaxed	2	2.9	50	71.4	11	15.7	7	10.0
get a sort of frightened feeling like 'butterflies' in the stomach	13	18.6	19	27.1	36	51.4	2	2.9
feel restless as I have to be on the move	32	45.7	23	32.9	15	21.4	0	0.0
get sudden feelings of panic	18	25.7	24	34.3	22	31.4	6	8.6
Depression								
still enjoy the things I used to enjoy	5	7.1	47	67.2	14	20.0	4	5.7
can laugh and see the funny side of things	16	22.9	54	77.1	0	0.0	0	0.0
feel cheerful	44	62.9	14	20.0	12	17.1	0	0.0
feel as if I am slowed down	15	21.4	41	58.6	14	20.0	0	0.0
have lost interest in my appearance	13	18.6	23	32.9	29	41.4	5	7.1
look forward with enjoyment to things	15	21.4	41	58.6	12	17.1	2	2.9
can enjoy a good book or radio or TV program	16	22.9	26	37.1	26	37.1	2	2.9

Table (3): Frequency and percentage distribution of patients under study regarding medical factors affecting therapeutic regimen concerning health institutional factors (n= 70).

Medical factors	Yes		No	
	NO	%	NO	%
1- Health institutional factors:				
Treating physician answer your all questions	67	95.7	3	4.3
Treating physician use simple expression to explain instruction	70	100.0	0	0.0
Receiving the expected health care of hospital	61	87.2	9	12.8
Nursing staff explain the necessary instructions	62	88.6	8	11.4
Nursing staff use different teaching methods and booklets	7	10.0	63	90.0
Waiting for long periods to satisfy your needs	68	97.2	2	2.8
health care facility is near to home /work to provide care during emergency	17	24.2	53	75.8

Table (4): Relation between demographic characteristics of the studied patients and total level of knowledge (n=70).

Demographic characteristics	Total Knowledge				X ²	P-Value	
	Satisfactory		Unsatisfactory				
	NO	%	NO	%			
Age(in years)	18 > 28	0	0.0	3	4.2	19.000	0.057*
	28 > 38	19	27.4	8	11.4		
	38 > 48	10	14.2	7	10.0		
	> 48	15	21.4	8	11.4		
Gender	Male	23	32.8	14	20.0	9.045	0.0333*
	Female	21	30.1	12	17.1		
Marital status	Single	10	14.2	9	12.8	5.235	0.732
	Married	34	48.5	17	24.5		
Educational level	Not read/write	0	0.0	3	4.2	19.754	0.037*
	Read and write	7	10.0	1	1.4		
	Secondary	23	32.8	11	15.8		
	University	14	20.0	11	15.8		
Occupation	Free work	9	12.8	6	8.6	11.485	0.779
	Governmental work	23	32.8	14	20.0		
	No work	12	17.2	6	8.6		
Residence	Rural	26	37.1	13	18.6	11.141	0.194
	Urban	18	25.7	13	18.6		
Receiving knowledge	Yes	44	62.9	24	34.3	2.214	0.049*
	No	1	1.4	1	1.4		

**HS (Highly Significant) * P value < 0.01 S (No Significant) P value < 0.05

Discussion

In relation to demographic characteristics, the results of the present study showed that, one third of the patients under the study were 48 years or more, this might be due to Progressive

ageing of a population is associated with an increased prevalence of chronic degenerative diseases, increased life expectancy related to ageing. This finding was in agreement with *Rostagno, (2019)* mentioned that, most of studied patients their age more than 50 years. S0, the aim

of the current study was to assess factors affecting adherence to therapeutic regimens among patients with cardiac valve replacement. To fulfill this aim one research question was stated:

What are the factors affecting adherence to therapeutic regimens among patient with cardiac valve replacement?

In relation to demographic characteristics, the results of the present study showed that, one third of the patients under the study were 48 years or more, this might be due to Progressive ageing of a population is associated with an increased prevalence of chronic degenerative diseases, increased life expectancy related to ageing. This finding was in agreement with *Rostagno, (2019)* mentioned that, most of studied patients their age more than 50 years. Regarding to gender and marital status, the present study showed that, most of studied patients were male and married. These finding was in agreement with *Pellegrini, et al. (2019)* who mentioned that, slightly more than half of studied patients were males and the majority of the studied patients were married.

This finding was disagreed with *Cedano et al (2012)* who found that, more than half of studied patients were female and widowed.

Concerning the educational level, the present study results indicated that, about half of the studied patients had secondary education. This finding was contradicted with *Javan, et al. (2019)* half of studied patients were elementary school or less.

Concerning occupation, the current study revealed that, slightly more than half of studied patients were governmentally employed. These finding was in agreement with *Berg, et al, (2018)*

who found that, more than two third of studied patients work in public and private sector.

Regarding to patients receiving knowledge and skills about self-care. The present study showed that, most of studied patients received knowledge and skills about self-care. This finding agreed with *De Meneses et al, (2015)* who found that, more than two third of studied patients had received knowledge and skills about self-care.

Concerning patients' knowledge regarding cardiac valve replacement, the results of the present study showed that, more than half of studied patients had satisfactory level of knowledge regarding cardiac valve replacement. This might be due to that the majority of studied patients had received knowledge about cardiac valve diseases, replacement and self-care. This finding was in agreement with *Sharaf, Ibrahim & Elhamami, (2017)* who presented that, the majority of study patients had satisfactory level regarding knowledge of cardiac valve replacement.

Concerning to level of adherence to therapeutic regimens. The current study presented that, two third of studied patients had satisfactory level of knowledge of adherence to therapeutic regimens. This finding was disagreed with *Demir Korkmaz, (2015)* who founded that majority of studied patients had unsatisfactory level of knowledge of adherence to therapeutic regimens.

Regarding to medical factors affecting treatment regimen adherence concerning health institutional factors. The current study showed that, most of studied patients were answered all questions from treating physician use

simple expression to explain instruction respectively. This finding was agreed with *Sengstock et al (2012)* who founded that two third of studied patients were answered all questions from treating physician use simple expression to explain instruction respectively.

Regarding medical factors related to patients condition. The current study found that, two third of studied patients affected by patients condition. This could be due to the personal and health status of patient affect level of adherence. This finding was on the same line with *Demir Korkmaz, (2015)* who founded that all studied patients were affected level of adherence.

Concerning the relation between the studied patients' level of knowledge,

As regarding to the relation between sodemographic characteristics of the studied patients and their total knowledge. The current study revealed that, there were statistical significant difference between total knowledge level of the studied patients and their gender, educational level and receiving knowledge / skills. This findings were in agreement with *Teng et al, (2020)* who mentioned that there were highly statistical difference between total knowledge level of the studied patients and their age, educational level and receiving knowledge / skills.

The current study revealed that there were no statistical significant differences between patients' total knowledge level and their age, marital status, occupation and residence. This findings were disagreed with *Goossens et al, (2013)* who founded that there were statistical differences between patients' total knowledge level and their gender, marital status, occupation and residence.

Conclusion

The present study showed that, less than two thirds of studied patients had satisfactory level of knowledge regarding cardiac valve replacement and that more than two thirds of studied patients's were adhere to therapeutic regimen. There was a statistically significant relation between total knowledge level of the studied patients and demographic characteristics regarding age, gender, educational level and receiving knowledge/ skills. Also, there was a statistically relation between adherence level and level of knowledge regarding medication and follow up. Finally , there was relation between patients level of adherence and medical factors regarding medication factors.

Recommendations

In the light of these findings the following recommended was:

Recommendations for patient related factors:

- Increase public awareness about efficacy of positive adherence in improves general condition for patients with cardiac valve replacement and prevents complications through directed program to persons in community.
- Developing a simplified illustrated and comprehensive Arabic booklet including information about cardiac valve replacement, lifestyle changes for positive adherence post cardiac valve replacement and its therapeutic regimen.
- A multidisciplinary rehabilitation program should therefore be available for all patients undergoing valve surgery.

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