

THE EFFECTIVENESS OF INFORMATIVE PAMPHLET ON MEDICATION ADHERENCE AMONG CARDIAC PATIENTS IN TERTIARY CARE HOSPITALS PESHAWAR, PAKISTAN

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Abstract

Keywords

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Copyright @Author Corresponding Author: * Noor Ul Haq **Background:** Medication adherence taking the right dose of medication on right time according to physician order. The Medication adherence is very necessary for the management of cardiac disease. Different studies say that educating patient (health literacy) increase the medication adherence and the telephonic follow-up act as a reminder for them to be adherent. This evaluate the effectiveness of structure informative pamphlet on medication adherence of cardiac patients.

Method: A Quassi experimental study was undertaken with 72 participants who visited to outpatient department of two private tertiary care hospital in Peshawar Pakistan. The equal distribution of participant was done; 36 patients were in experimental group while 36 patients were in control group. Medication adherence scale (Morisky medication adherence) tool was used for data collection.

Result: The finding of this study revealed that before educating the patients there were no medication adherence at higher level in experimental group; moreover, after 1 week of educating patients it increases to 36 % and further increase to 47% after 2^{nd} week. In control group at time of 1^{st} interaction only 8% participants having medication adherence, moreover after 1^{st} week of visit the patient's adherence become 10%, furthermore, after 2^{nd} week of visit the adherence decline to 3%. These finding clearly show that medication adherence in experimental group increase by educating the patients with structure teaching.

Conclusion: Educating patient is an effective intervention in cardiac disease management contributing to healthy life. This study proves that educating patient has very significant association with medication adherence so the healthcare workers like Nurses and Doctors can use educational intervention with clinical work to increase the medication adherence which ultimately will increase their wellbeing.

INTRODUCTION

Cardiac issue like Heart failure (HF) is a major public health problem and a leading cause of death in the world (Roger, 2013; Sakata & Shimokawa, 2013). Cardiac issue effect human life in many ways not only it cause symptom related to cardiac issue (Bekelman et al., 2007). According to one of the survey every third person in Pakistan has hypertension which comprises of 18% of total Pakistan population and also increasing the chances of different cardiac disease like stroke, atrial

fibrillation, heart failure, myocardial infarction (Saleem, Hassali, Shafie, Awad, & Bashir, 2011)But others effect like declined in health related quality of life (HRQOL) And poor mental health status. Cardiac patients also increased economic burden (Liao, Allen, & Whellan, 2008; Yu, Chair, Chan, & Choi, 2015). According to most recent researches cardiovascular disease is the most leading cause of death worldwide especially in low medical income countries (LMICs). The communicable diseases that kills 16 million deaths worldwide, 82 % is in in low middle income countries (LMICs) and 37 % death is due to cardiovascular disease (Turin et al., 2013).

There is variation among mortality rate of different age, ethnicity, location and socio economic status and mortality rate for CVD is 3 time more in male of age less than 70 than women. And double in low income country. Most south Asian country like Pakistan, Nepal, India, Sri lanka, Bangladesh have more CVD cases than others countries, there is some modifiable risk factor for CVD is hypertension, diabetic, smoking, obesity, lack of exercise, lack of fruit and vegetable and the use of alcohol. Pakistan is facing issue of both communicable as well as noncommunicable disease. An estimate about common disease in Pakistan include 2.8 % stroke, 10 % diabetic mellitus, 21 % obesity, 17.3 % high cholesterol, 21 % tobacco use, 41 % hypertension. Studies show that Pakistani practitioners fail to detect hypertension correctly according to the recommended guideline of Pakistan hypertension leagues 30. According to a study 28.5 % of practitioners doesn't know well about hypertension and 76.47 % does not follow the recommended (Barolia & Sayani, 2017).

Adherence to medication therapy is very important for better outcome of cardiac issues which got attention of medical researcher and they create many techniques for medication adherence (Saleem et al., 2011). Some study state that 50% non-adherence in developed countries while the rate will definitely be high for developing countries because of low health resources in these countries (Briesacher, Andrade, Fouayzi, & Chan, 2008; Lehrer et al., 2018). The study report that effect of medication non adherence cause 1 lac and twenty five thousand death and cause 10 % hospital admission (Simon, Kini, Levy, & Ho, 2021). Patient with chronic disease have only 50 %



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of medication adherence around the world (Sabaté, 2003). Patient who have myocardial infarction in their past have medication adherence of 13 % to 16% (Ho, Bryson, & Rumsfeld, 2009). Like other chronic disease, the medication compliance is very low for chronic heart disease(Sabaté, 2003). . We can measure the patient medication compliance in two different ways, one is direct in which we observe that the patient is taking medication or monitoring the medication level in blood, secondly the indirect method in which patient report about medication adherence, counting numbers of medication used. The indirect method is self-monitoring of medication compliance (Pilgrim & Windecker, 2014). The accurate method is direct which is more reliable and correct one but it is time consuming, the indirect method are very easy to take but its reliability and precision are low (Kubica, Kosobucka, Fabiszak, Gorog, & Siller-Matula, 2019; Lam & Fresco, 2015).

There are many ways to control cardiac issues through patient education, lifestyle changes, physical activity, and psychological support.(Krumholz et al., 2006). An informative pamphlet is one the of tools used for patient education about health (Krumholz et al., 2002)But all these management used in combination therefore it is difficult to say that which one is more effective (Krumholz et al., 2006). Cardiac education consist of self-management like decreased sodium intake ,weight monitoring, compliance to medication and physical activity (McDonald, Conlon, & Ledwidge, 2007). To increase medication adherence of patient, we must know that it is a series of behaviors composed of three steps. Initiation of new medication. Stay on adherence accordance as prescribed. Stopping the medication may it is recommended in treatment plan. Medication adherence in management of chronic disease is big problem in world (Zullig, Ramos, & Bosworth, 2017).

The telephone follow-ups are used for strengthening about what we already teach them, or if need of more knowledge, or any worsening of symptoms of patient arise and it is also a communication which help in psychological support for patient. Some studies have reported that cardiac education to patient and telephone follow up decrease the mortality, the readmission to hospital and also the stay at hospital (Koelling, Johnson, Cody, & Aaronson, 2005; Krumholz et al., 2002; Pilgrim & Windecker, 2014)

According studies, these to educational interventions given to patient increase patients' selfcare and also efficacy (DeWalt et al., 2006; Koelling et al., 2005).while other study say that such interventions can increase health literacy and decrease the cost of patient (Koelling et al., 2005; Tsuyuki et al., 2004). Literacy and education level have significant effect on medication adherence, a study done on 61 patients with heart failure (Hope, Wu, Tu, Young, & Murray, 2004). Nearly 50 % of patient do not take their medication as directed to them. Patient who don't take their medication on right time or who miss the medication have negative effect on their health (Kolandaivelu, Leiden, O'Gara, & Bhatt, 2014). Health care worker face a difficult problem according to medication adherence of patient. In 2011 according to American college of preventive medicine there are 5 important factor which affect the medication adherence of patient. Research should focus on these factors which are 1) patient 2) therapy related factor 3) medical condition related factor 4) socio economic factor 5) health care related factor (Ferdinand et al., 2017).

Socioeconomic factor which negatively affect adherence are poor literacy, low income, low social support, low living condition, too expensive medication, lack of transportation, cultural belief against medication, far distance from pharmacy. Sometime patient tries to reduce the cost of medication by decreasing dosage of medication or frequency of medication which also effect the adherence. Patient biographic data also effect on adherence. Hispanic, American African, female gender and older age has less adherence than others. A study of 51772 patients with hypertension show that African American has lees adherence than white people. Educating patient at the time of discharge has significantly positive effect on medication adherence (Ferdinand et al., 2017). Some medical condition like anxiety and depression has negative effect on medication adherence related to cardiac issue (Gehi, Ali, Na, & Whooley, 2007). Patient related factor such as vision problem, cognitive, motor and swallowing problem, frustration, anxiety



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is also barriers for medication adherence (Ferdinand et al., 2017).

The aim of the study is to find out the effectiveness of structure education on medication adherence among cardiac patient in Peshawar, Pakistan.

Research Objectives:

To find out the effect of structure education pamphlet on medication adherence.

Methodology:

Study design:

The study was a quasi-experimental study, conducted at two tertiary care hospitals in Peshawar Pakistan given

Population:

The population of the study was cardiac patients above 18 years old admitted in selected hospitals in Peshawar Pakistan.

Exclusion criteria:

The following patients was excluded:

• Those who was blind and deaf and,

• Based on language of those who don't understand English, Urdu, Pashto and Chitrali language.

Sample size and sample size Calculation:

The sample size was calculated by keeping the power of the study equal to 80% and the level of significance equal to 95% as expected. n= calculated sample size = 36

Sample Technique:

First of all, the cardiac educational pamphlet was taught and handed over to the patient. A teach back technique was also used to find out how well the patient understand the pamphlet. The education pamphlet consists of ; (1) taking the right dose of medication on right time according to physician prescription and don't miss your pills (2) check your cholesterol and B.P on regular basis (3) exercise daily for at least 30 min (4) cut off from alcohol usage and cigarette smoking as it adversely affects cardiac and liver health (5) take good enough sleep of 8 hours daily (6) decrease intake of sugar and salt and (7) eat healthy recommended diet.

The pamphlet was converted to both Urdu and English languages and visible pictures was given in the pamphlet so illiterate people can easily understand.

After 1 week and 2 weeks of educating the pamphlet a telephone follows up had been made to measure effectiveness of our structure education on their medication adherence of cardiac patient.

Tool:

To find out the effectiveness of education pamphlet on medication adherence, a standard toll Morisky medication adherence scale 8 (MMAS 8) was which consist of 8 question about how well they adherent and not adherent to their medication therap. Out of 8 questions 1 to 7 have response of "yes" or "no" while question number 8 has a 5point Likert scale response. The "no" response was rate as "1" and each "yes" was rated as "O" except for question number 5, in which each response "yes" is rated as "1" and each "no" is rated as "O*. For question number 8, if a patient chooses response "O", the score was "1" and if they choose response *4", the score is "0". Responses "1, 2, 3" are respectively rated as"0.25, 0.5, 0.75*. The MMAS-8 scores can range from 0 to 8 and have been categorized into three levels of adherence: high adherence (score = 8), medium adherence (score of 6 to <8), and low adherence (score< 6) (Morisky, Green, & Levine, 1986).

Data analysis:

Data was analysis through SPSS analysis programed. Mean and standard deviation are used to find out quantitative measurements. Chi square test was applied for qualitative verifiable.

RESULT OF THE STUDY

Overview of the Chapter

This chapter is intended to analyze and elaborate on the collected data from the participants. The



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collected data has been tabulated and analyzed by using Statistical Package for Social Sciences (SPSS) version 25. The result is presented in two parts. The first part comprises descriptive statistics and the second part consists of analytical statistics. Descriptive statistics were used to calculate frequencies and percentages for qualitative variables. Analytical statistics were used to assess the effectiveness of structure teaching to cardiac patients. The findings of this analysis are being presented in the form of charts, tables, and columns keeping in view the nature of data collected through Data collection Performa. The tables and charts were further interpreted and elaborated for better understanding.

Descriptive Statistics:

A total of 72 participants from two private Hospital in Peshawar Khyber Pakhtunkhwa, Pakistan were enrolled in this study. The participants were equally distributed into two groups; 36 patients in the experimental group received education about medication adherence through an informative pamphlet with their baseline treatment from their perspective physician, and 36 participants were inducted into the control group who received only their baseline treatment from their physician.

Out of 72 participants, 50 (70%) patients age were more than 50 years old, and 19 (26%) age was from `41 to 50 years old. There were 31 (43%) male and 41 (57%) female. The majority of the participants about 69 (96%) were married while only 3 (4%) were unmarried, as shown in Table 1.

Almost 47 (65%) participants were illiterate, 6(8%) were in primary education, 6 (8%) were in matric education, 6 (8%) were intermediate, 4(6%) were graduated, 3(4%) were master's degree holders, as shown in Figure-1.

ISSN: (e) 3007-1607 (p) 3007-1593 Frequency of Education of the Participants



Figure 1:Frequency of Education of the Participants

Analytical Statistics:

A chi-square test was used to compare the frequency of distribution of gender between the experimental and control groups. The findings show that there is no such significant difference in the gender distribution of the experimental and control groups, as shown in Table 2.

Table 1: Frequency of distribution of according to the	e gender of participants
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Casuma		Gender		Devalue
Groups		Male	Female	r value
Experimental group	n	16	20	0.012
	%	22.22	27.77	
Control group	n	15	21	0.812
	%	20.83	29.16	

| Haq et al., 2025 |

Compare the frequency of distribution of participants' age between the experimental and control groups. The findings show that there is no such significant difference (P-value=0.17). Similarly, the education level of participants and marital status of the participants were also compared in both groups and the findings were not significant (P-value=0.19).

A chi-square test was used to compare the medication adherence between the control and experiment groups. Data were collected before structured education through the education pamphlet and after 1st and 2nd weeks of education, the results show that there is a significant difference between the interventional group and the control group. The percentage of medication adherence increased in the interventional group from before educating the patients to 1st week and to 2nd weeks. Vice versa The percentage of medication adherence decreased in the control group during 1st week and during 2nd week after discharge, as shown in Table 3.





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1 able 2 Association of Medication adherence between both groups							
	Medication Adheren						
Groups	Low Adherence	Moderate Adherence	High Adherence	P Value			
Experimental Group Before Education	17 (24%)	19 (26%)	0 (0%)	0.002			
Control Group Before Education	7 (10%)	23 (32%)	6 (8%)	0.002			
Experimental Group After 1 st Week	0 (0%)	10 (14%)	26 (36%)	0.00			
Control Group After 1 st Week	4 (6)	25 (35%)	7 (10%)	0.00			
Experimental Group After 2 nd Week	0 (0%)	2 (3%)	34 (47%)	0.00			
Control Group After 2 nd Week	11 (15%)	23 (32%)	2 (3%)	0.00			

Discussion

In this study medication adherence increased in the experimental group from baseline data to the end of the data collection while in the control group, the medication adherence decreased from baseline to end of data collection. The finding of our study revealed that group before educating the patients there were no medication adherence at higher level in experimental group; moreover, after 1 week of educating patients it increases to 36 % and further increase to 47% after 2nd week of educating patients. In control group at time of 1st interaction Only 8% participants having medication adherence, moreover after 1st week of visit the patients the adherence become 10%, furthermore, after 2nd week of visit the adherence decline to 3%. These finding clearly show that medication adherence in experimental group increase by educating the patients with structure teaching. The very positive effect of health education through pamphlets on medication adherence of cardiac patients may be due to the following reasons

• Giving enough knowledge through informative education pamphlets to intervention groups.

• The weekly telephone follow-up which worked as a reminder for them.

• Good communication and more interactive time spent between the researcher and participants.

Similarly, there are many researches that show that education of patients can increase medication adherence of patient. But there are also some researches that show that education and knowledge given to patient doesn't increase medication adherence. According to the (Hacihasanoğlu & Gözüm, 2011) 2 group, group A and B were taken as interventional and a single control group was also taken, both group A and B were given 6-time education about medication adherence about 6 months. Only group B were given education about life style changes. Group A and group B medication adherence were increase due to education about medication adherence. Group B medication adherence were more increase than group A this may be because of extra education given to them about life style changes while control group medication adherence doesn't increase.

According to study conducted in china (Yu et al., 2015) the medication adherence within the groups decline but between the group's comparisons shows that medication adherence increase in experimental group. This is due to the education given and also the telephone follows up act as a reminder for them. According to (Saleem et al., 2011) conducted in Quetta Pakistan, there is no association between education of patient and medication adherence is a multifactorial phenomenon so the adherence should not only be concluded from education and knowledge but other factor like cost of medication, mentally disease like depression forgetfulness, family support should also be considered.

According (Al-Ramahi, 2014)to study conducted in Palestine 54.2% patient have low adherence. This may be due to reason that more participant was from village, as village have little facilities of education and health. Forgetfulness was also a reason for low adherence because the study was cross sectional which is data collection at a time, what if it was Quassi or RCT then the patient will be in touch with researcher and it will increase their motivation and will act as a reminder.

Strength of the study:

1)The positive effect comes of education on medication adherence of patients.

2)Multi diversity people involved from different areas of Pakistan and Afghanistan.

3)In clinical, healthcare worker must focus on educating the patient about medication adherence because it has good effect on their health.

4)In medical and paramedical curriculum education of patient about medication adherence should be added.

5)It can be also used in further research especially in Pakistan related to the topic.

Weakness of the study:

1) A convenient sampling is used for data collection due to shortage of time and resources.it might be RCT.

2) Two private tertiary care hospitals was taken for the research which if we also add a governmental hospital then it will be very good representation of the community.

Conclusion:

Patient education is an effective intervention in cardiac disease management contributing to healthy life. This study proves that educating patient has very significant association with medication adherence so the healthcare workers like Nurses and doctors can use educational intervention with clinical work to increase the medication adherence which ultimately will increase their wellbeing.

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