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ASSESSMENT OF BARRIERS TO ADHERENCE AMONG NON-COMMUNICABLE CHRONIC DISEASES' PATIENTS IN QUETTA, PAKISTAN

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ABSTRACT

Objective: The present study aims to assess the barriers to adherence in different chronic disease patients in tertiary care hospitals of Quetta, Pakistan.

Methodology: A cross-sectional, questionnaire-based descriptive study was conducted from March to August 2018 in two tertiary care hospitals of Quetta city among chronic disease patients. Drug attitude inventory (DAI-10), a 10-item scale was distributed among chronic disease patients. A sample size of 443 patient was selected and convenient sampling method was used to collect data. Descriptive and inferential statistics were used to describe the results. Statistical package for social sciences (SPSS) V.20 was used to analyze the data.

Results: Out of 443 patients 348 returned the filled questionnaire with a response rate of 76.29%. Most of the respondents fell in the age group of 51-65 years i.e. 173 (49.7%). Majority of the respondents to be male with 230 (66.2) and majority of respondents 314 (90.2%) were married. Most prevalent chronic disease among patients was Diabetes Mellitus as 108 (31%). Overall

mean score was 7.02 (S.D ± 1.88). Which can be classified as adherent. Type of Disease, State of disease and barrier were significantly affecting the level of adherence (*P*-value < 0.001).

Conclusion: Current study demonstrated that most of the chronic disease patients were adherent to the treatment regimen. Further improvement in clinical settings, counseling and patient perception of medicine can enhance adherence level.

Keywords: Adherence, Barrier, Chronic Disease, DAI-10

INTRODUCTION

Adherence to a medication regimen is generally defined as the extent to which patients take medications as prescribed by their health care providers[1]**.** Non-adherence to medication regimen is major cause of aggravation of morbidity and mortality in developing countries. Chronic diseases like diabetes mellitus (DM), hypertension (HTN), asthma and arthritis need patient's adherence to medications therapy for positive health outcomes. Non-adherence to medication tends to increase burden on health sector and health economy by readmission in hospitals and revisiting the clinics thus elevating the cost of treatment [2-4]. Despite this, patient and clinician or health care provider agreement on the medication regimen or lifestyle changes, prevalence of non-adherence has always been higher all over the world due to number of factors.

Assessment of adherence is very important and nowadays is of great concern to clinicians, health care providers, and stake holders because poor adherence or non-adherence could lead to worsening of condition, increasing the mortality and morbidity rate and also leading to increment in health care cost [5].The full benefit of medication could be achieved only if patient takes medicines for time being said and dose prescribed by health care provider. A study says that rates or levels of adherence are high in patients with acute disease than patients with chronic disease [5].

Non-adherence appears to be a difficult problem to resolve and remains a global concern for healthcare. Adherence toward medication can be improved by using effective interventions [6, 7]. Several studies have focused on the barriers that a patient faces in remaining adherent to medication therapy [8]. A patient can control the common barriers to adherence, and it is necessary to focus on them in order to improve adherence.

Literature shows that there is poor medication adherence among non-communicable chronic diseases among

chronic disease patients of Quetta [9, 10]. Various predictors of adherence were also identified but still there is a lack regarding assessment of barriers to medication adherence among chronic patients. Therefore, the present study aims to assess the barriers to adherence in different chronic disease patients in tertiary care hospitals of Quetta Pakistan.

METHODOLOGY

Study Design

The study was designed as an observational and questionnaire-based cross-sectional. Cross-sectional studies can usually be conducted relatively faster and are relatively inexpensive.

Settings and duration for study

Two tertiary care hospitals, a) Bolan Medical Complex Hospital Quetta, b) Sandeman Provincial Hospital Quetta, in Quetta were selected. The two hospitals were selected considering the fact that they are most frequented by patients throughout the year and hence feasible for collection of data. The duration of the study was from March to August 2018.

Instruments

Drug Attitude Inventory (DAI-10) is a scale used to assess the level of adherence to medication [11]. It is a self-report measure. It is short and easy to administer to patients. It was translated into Urdu by F. Saleem et al [12]. The scale is based on 10 items with binary responses. The DAI-10 scoring ranges from -10 to +10 which indicate positive and negative attitude towards adherence. A score of 6 or above shows adherence and score below that indicates poor or no adherence.

Study population

All chronic non-communicable disease patients having minimum of 1 year of disease history and visiting tertiary care government hospitals were included in the study.

Sample size

The sample size was calculated using Rao Soft sample size calculator [13]. According to RaoSoft calculator, with 95% of confidence interval and 5% of margin of error, 385 sample size was estimated. 15% drop out were added in 385 that resulted overall sample size of 443.

Sampling Procedure

Convenient sampling method was used to collect the data.

Data Collection

Data will be collected from patients of chronic diseases visiting/admitted in the above-mentioned hospitals.

Ethical approval

Ethical approval committee of the department approved the research. Permission to use the questionnaire was

obtained. A verbal consent was taken before distributing questionnaire.

Statistical analyses

The Kolmogorov Semenov test was used for normality analysis and non-parametric test were used accordingly. Descriptive & inferential statistical analysis of data was be done using SPSS version 20.Multiple tests such as Mann–Whitney U, Kruskal–Wallis and Chi Squareetc were used to assess the association between the variables.

RESULTS

Demographic Characteristics:

Most of the respondents fell in the age bracket of 51-65 years i.e. 173 (49.7%) out of 348 total respondents. Gender wise distribution showed majority of the respondents to be male with 230 (66.2%) male respondents. Marital Status inquiry showed that majority of the patients, 314 (90.2%), were married. Most prevalent chronic disease among patients was Diabetes Mellitus as 108 (31%) followed by Hypertension in 84 (24.1%) patients. The duration period that most, 223 (64.1%) of the participants fell in was between 1 to 5 years from onset of disease. Majority of the respondents, 287 (82.5%), had controlled state of disease. The demographic characteristics are shown below in Table 1.

The responses of Q.1 of DAI-10 which showed that 228 (81%) respondents answered True, for Q.2 275(79%) responded False, for Q.3 299 (85.9%) answered True, for Q.4 response of 306 (87.9%) was True, for Q.5 210 (60.3%) responded with False, for Q.6 192 (55.2%) said True, True responses for Q.7 were 296 (85.1%), for Q.8 308 (88.5%) replied with True, Q.9 had 264(75.9%) responses to be True and for Q.10 318 (91.4%) out of 348 said True in response. The responses are shown in Table 2.

Respondents from age group of 36-50 had the mean score of 7.40 (S.D $\pm$1.03). Highest mean value of 7.44 (S.D $\pm$1.75) was for unmarried. Cardiovascular patients had the highest mean score of 7.87 (S.D $\pm$1.76), for Asthmatic respondents. Duration of disease had highest mean score of 7.47 (S.D $\pm$1.90) for the group 11 and above. Controlled state of disease had higher mean value of 7.35 (S.D $\pm$1.59). Effect on capabilities had 7.73 (S.D $\pm$1.14), which was the highest mean value among barriers. Overall mean score of DAI-10 is 7.02 (S.D $\pm$ 1.88). Which can be classified as adherent. Mean values are shown in Table 3.

140 Patients in the age bracket of 51-65 were found adherent and 33 were non adherent of the same class. Most of the patients, 138,

were males who were adherent and 92 males were non adherent. 253 adherent respondents were married and 61 were non adherent. 80 patients of diabetes mellitus were adherent and 28 were non adherent. Most of the patients, 184, having duration of disease between 6-10 years were adherent and 40 were non adherent. Patients with controlled state of disease found adherent were 255 and 33 with uncontrolled disease were non adherent. 127 Patients reported Forgetfulness to be the most common barrier in adherence to medication regimen. It is shown in Table 4 below.

283 Patients were found to be adherent out of 348 which is 81.3%. Whereas 65 patients were non adherent which is 18.7%. It is shown in Table 5.

Table 1: Demographic Characteristics of Patients (N=348)

S. No	Characteristics	Frequency	Percentage
1	**Age**		
	<20	**15**	**4.3**
	21-35	**28**	**8.0**
	36-50	**92**	**26**
	51-65	**173**	**49.7**
	66 and above	**40**	**11.5**
2	**Gender**		
	Male	**230**	**66.2**
	Female	**117**	**33.7**
3	**Marital Status**		
	Married	**314**	**90.2**
	Unmarried	**32**	**9.2**
4	**Disease**		
	Hypertension	**84**	**24.1**
	Diabetes Mellitus	**108**	**31**
	Arthritis	**29**	**8.3**
	Asthma	**40**	**11.5**
	Cardiovascular	**15**	**4.3**
	Renal	**5**	**1.4**
	Other	**39**	**11.2**
	Comorbid	**28**	**8**
5	**Duration of Disease (years)**		
	1-5	**223**	**64.1**
	6-10	**70**	**20.1**
	11 and above	**53**	**15.2**
6	**State of Disease**		
	Controlled	**287**	**82.5**
	Uncontrolled	**61**	**17.5**
7	**Barrier**		
	Low Purchase power	**38**	**10.9**
	Forgetfulness	**138**	**39.7**
	Insufficient benefit	**37**	**10.6**
	Poly pharmacy	**61**	**17.5**
	Difficult use	**18**	**5.2**
	Complementary alternative system	**39**	**11.2**
	Effect on Capabilities	**17**	**4.9**

Table 2: Responses of DAI-10

S. No	Questions	True		False	
		Frequency	Percentage	Frequency	Percentage
1	For me, the good things about medication outweigh the bad	228	81	66	19
2	I feel uncomfortable on medication.	73	21	275	79
3	I take medications of my own choice.	299	85.9	49	14.1
4	Medications make me feel more relaxed.	306	87.9	42	12.1
5	Medication makes me feel tired and sluggish.	138	39.7	210	60.3
6	I take medication only when I am sick.	192	55.2	156	44.8
7	I feel more normal on medication.	296	85.1	52	14.9
8	It is unnatural for my mind and body to be controlled by medications.	308	88.5	40	11.5
9	My thoughts are clearer on medication.	264	75.9	84	26.1
10	By staying on medications, I can prevent getting sick.	318	91.4	30	8.6

Table 3: Mean Values of DAI-10

S. No	Demographic	Mean	Std. Deviation	P Value
	Age			
	<20	6.67	2.05	
1	21-35	7.89	1.03	0.011
	36-50	7.40	1.66	
	51-65	6.91	1.76	
	66 and above	6.20	2.70	
	Gender			
2	Male	6.28	1.65	0.352
	Female	7.46	1.78	
	Marital Status			
3	Married	6.99	1.90	0.113
	Unmarried	7.44	1.75	
	Disease			
	Hypertension	7.65	1.51	
4	Diabetes Mellitus	6.96	2.17	
	Arthitis	6.34	2.09	
	Asthma	7.02	1.38	0.000
	Cardiovascular	7.87	1.76	
	Renal	4.80	1.09	
	Other	6.21	1.99	
	Comorbid	7.21	1.10	
	Duration of Disease (years)			
	1-5			
5	6-10	7.11	1.74	0.027
	11 and above	6.41	2.19	
		7.47	1.90	
	State of Disease			
6	Controlled	7.35	1.59	0.000
	Uncontrolled	5.52	2.30	
	Barrier			
	Low Purchase power	5.82	2.10	
	Forgetfulness			
	Insufficient benefit	7.73	1.48	
	Poly pharmacy	6.11	2.17	
7	Difficult use			0.000
	Complementary alternative system	6.92	1.46	
	Effect on Capabilities	6.89	1.18	
		6.51	2.56	
		7.76	1.14	
	Overall Mean score of DAI-10	7.02	1.88	

Table 4: Frequencies of Adherent and Non Adherent Patients

S. No	Demographic	DAI 10		P Value
		Adherent	Non-Adherent	
	Age			
	<20	**11**	**4**	
1	**21-35**	**28**	**0**	**0.000**
	36-50	**80**	**12**	
	51-65	**140**	**33**	
	66 and above	**24**	**16**	
	Gender			
2	**Male**	**138**	**92**	**0.612**
	Female	**91**	**26**	
	Marital Status			
3	**Married**	**253**	**61**	**0.502**
	Unmarried	**28**	**4**	
	Disease			
	Hypertension	**76**	**8**	
	Diabetes Mellitus	**80**	**28**	
4	**Arthritis**			
	Asthma	**21**	**8**	**0.007**
	Cardiovascular	**36**	**4**	
	Renal	**13**	**2**	
	Other	**02**	**3**	
	Comorbid	**30**	**9**	
		25	**3**	
	Duration of Disease (years)			
	1-5			
5	**6-10**	**184**	**40**	**0.334**
	11 and above	**52**	**19**	
		45	**08**	
	State of Disease			
6	**Controlled**	**255**	**32**	**0.000**
	Uncontrolled	**28**	**33**	
	Barrier			
	Low Purchase power	**24**	**14**	
	Forgetfulness	**127**	**11**	
	Insufficient benefit	**25**	**12**	
7	**Poly pharmacy**			**0.000**
	Difficult use	**49**	**12**	
	Complementary alternative system	**16**	**02**	
	Effect on Capabilities	**25**	**14**	
		17	**0**	

Table 5: Level of Adherence according to DAI-10

S. No	Level of Adherence	Frequency	Percentage
1	**Adherent**	**283**	**81.3**
2	**Non-Adherent**	**65**	**18.7**

DISCUSSION

Chronic diseases account for massive burden on global health status. Non adherence to medication regimen only worsens the situation. Improving adherence can improve the health outcomes and lessen the readmission in hospitals. In present study, overall population showed adherent behavior towards medication regimen with 81%. While almost 19% of population remained poorly adherent towards treatment plan. This is contrary to a study conducted in 2014,

where over all non-adherence was 61% among chronic disease patients [14]. The increased level of adherence in present study can be attributed to the difference in sampling population as the focus of current study on Urban population which excluded the Afghan refugees contrary to previous studies. Moreover, several studies indicate the enhanced level of knowledge in HTN and DM patients which constitute majority of our sample population [12, 15]. Another reason for this reduction in non-adherence is due to implementation of national action plan and different projects related to awareness of medication safety were held among physicians and patients [16].

Other factors such as perception, understanding and knowledge of outpatients may have contributed in the variation of results from previous studies.

A similar study conducted in same city among hypertensive patients, showed 64.7% of participants were poor adherent to medication therapy [12]. While in current study the 9.5% of the hypertensive patients were non adherent. The significant reduction in non-adherence could possibly be attributed to improved knowledge about severity of disease and improved health care system. Which further needs investigation for confirmation.

The results from current study showed the most prevalent barrier in adherence among chronic disease patients was effect on capabilities followed by forget fullness and low purchase power remains the least barrier in adherence. Whereas, the results from other similar studies showed co-morbidity, type of illness, cost of treatment, and side effects of medication[17-19]. Our study failed to acknowledge other factors as reasons for non-adherence, which could be due to a positive impact of treating physicians in this regard.

Age, disease, state of disease and barrier to adherence have been found as significant influencer and predictors of adherence in chronic non communicable disease patients with DAI-10. These findings are contrary with the study performed in 2014 in Pakistan [14].

Duration of disease was not statistically significant but it had impact on adherence of the patient. As the results demonstrated that as the duration of disease/therapy progressed the level of adherence declined. This is similar to the results produced by other studies [14, 20, 21].

CONCLUSION

Current study demonstrated that most of the chronic disease patients were adherent to the treatment. Further improvement in clinical

settings, counseling and patient perception of medicine can enhance adherence level.

REFERENCES

[1] Roldan PC, Ho GY, Ho PM. Updates to Adherence to Hypertension Medications. Current hypertension reports. 2018; 20 (4): 34.

[2] Hovstadius B, Petersson G. Non-adherence to drug therapy and drug acquisition costs in a national population-a patient-based register study. BMC health services research. 2011; 11(1): 326.

[3] Cutler RL, Fernandez-Llimos F, Frommer M, Benrimoj C, Garcia-Cardenas V. Economic impact of medication non-adherence by disease groups: a systematic review. BMJ open. 2018; 8(1):e016982.

[4] Mongkhon P, Ashcroft DM, Scholfield CN, Kongkaew C. Hospital admissions associated with medication non-adherence: a systematic review of prospective observational studies. BMJ Qual Saf. 2018; 27(11): 902-14.

[5] Osterberg L, Blaschke T. Adherence to medication. New England Journal of Medicine. 2005; 353(5): 487-97.

[6] Kripalani S, Yao X, Haynes RB. Interventions to enhance medication adherence in chronic medical conditions: a systematic review. Archives of internal medicine. 2007; 167(6): 540-9.

[7] Rankin A, Cadogan CA, Patterson SM, Kerse N, Cardwell CR, Bradley MC, et al. Interventions to improve the appropriate use of polypharmacy for older people. Cochrane Database of Systematic Reviews. 2018(9).

[8] Hennein R, Hwang SJ, Au R, Levy D, Muntner P, Fox CS, et al. Barriers to medication adherence and links to cardiovascular disease risk factor control: the Framingham Heart Study. Internal medicine journal. 2018; 48(4): 414-21.

[9] Shaheen H, Haq NU, Riaz S, Naseem A, Zarak MS. Assessment of Medication Adherence among Non-communicable Chronic Disease Patients in Quetta, Pakistan: Predictors of Medication Adherence.

[10] Hashmi SK, Afridi MB, Abbas K, Sajwani RA, Saleheen D, Frossard PM, et al. Factors associated with adherence to anti-hypertensive

treatment in Pakistan. PloS one. 2007; 2(3): e280.

[11] Pomykacz B, Mao M, Weiss RD, Teter CJ. A review of brief medication-adherence instruments used in patients with schizophrenia and bipolar disorder. Harvard review of psychiatry. 2007; 15(5): 259-63.

[12] Saleem F, Hassali M, Shafie AA, Awad A, Bashir S. Association between knowledge and drug adherence in patients with hypertension in Quetta, Pakistan. Tropical Journal of Pharmaceutical Research. 2011;10(2).

[13] Raosoft I. Sample size calculator. Available from: www raosoft com/samplesize. 2004.

[14] Shaheen H, Haq NU, Riaz S, Naseem A, Zarak MS. Assessment of Medication Adherence among Non-communicable Chronic Disease Patients in Quetta, Pakistan: Predictors of Medication Adherence. Asian Journal of Medicine and Health. 2017;4(4):1-9.

[15] Aqeel T, Akbar N, Dhingra S, Haq N. Assessment of knowledge and awareness regarding asthma among school teachers in urban area of Quetta. Pakistan J Pharm Practice Community Med. 2015; 1(1): 18-23.

[16] Nishtar S, Faruqui A, Mattu MA, Mohamud KB, Ahmed A. The National Action Plan for the Prevention and Control of Non-communicable Diseases and Health Promotion in Pakistan--Cardiovascular diseases. JPMA The Journal of the Pakistan Medical Association. 2004; 54 (12 Suppl 3): S14-25.

[17] Taj F, Tanwir M, Aly Z, Khowajah AA, Tariq A, Syed FK, et al. Factors associated with non-adherence among psychiatric patients at a tertiary care hospital, Karachi, Pakistan: a questionnaire based cross-sectional study. Journal of the Pakistan Medical Association. 2008; 58(8): 432.

[18] Zeber JE, Miller AL, Copeland LA, McCarthy JF, Zivin K, Valenstein M, et al. Medication adherence, ethnicity, and the influence of multiple psychosocial and financial barriers. Administration and Policy in Mental Health and Mental Health Services Research. 2011; 38(2): 86-95.

[19] Bener A, Dafeeah EE, Salem MO. A study of reasons of non-compliance of psychiatric treatment and patients' attitudes towards illness and treatment in Qatar. Issues in mental health nursing. 2013; 34(4): 273-80.

[20] Tarutani S, Kikuyama H, Ohta M, Kanazawa T, Okamura T, Yoneda H. Association between Medication Adherence and Duration of Outpatient Treatment in Patients with Schizophrenia. Psychiatry investigation. 2016; 13(4): 413.

[21] Kane S, Huo D, Aikens J, Hanauer S. Medication nonadherence and the outcomes of patients with quiescent ulcerative colitis. The American journal of medicine. 2003; 114(1): 39-43.