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**IMPACT OF USAGE OF COMPLEMENTARY AND ALTERNATIVE MEDICATION
ON ADHERENCE TO PRESCRIBED MEDICATION IN PATIENTS WITH CHRONIC
DISEASES IN QUETTA, PAKISTAN**

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ABSTRACT

Globally there has been a strong impact of usage of Complementary and Alternative Medicine (CAM) on medication adherence but no data has been reported from Pakistan therefore the study aimed to evaluate the impact of (CAM) on medication adherence in chronic disease patients in Quetta, Pakistan. The chronic disease patients were recruited from outpatient departments of two public hospitals in Quetta city. They were asked to complete a questionnaire on CAM utilization, conventional therapy, demographics and adherence measurement scale. Adherence was measured by self-reported scale named Drug Attitude Inventory DAI-10. Descriptive statistics were used to describe demographics, disease related and CAM related characteristics of the patient. The impact of CAM on medication Adherence was determined by using chi square test. Majority of the patients 132 (41.3%) were categorized in the age group of 46-55 years. A total of 20.6% patients were identified as CAM users. The study found no association of adherence between CAM users and CAM non-users (p=0.06). Among CAM related questions only a type

of CAM use associated with adherence ($p=0.02$). Complementary and Alternative Medicines (CAM) has no impact on adherence. Type of CAM use was the only significant factor found in the study, further evaluation is needed to assess the impact of type of CAM on adherence.

Keywords: Complementary and Alternative Medicine; Adherence; chronic diseases; Pakistan

INTRODUCTION

The National Center for Complementary and Alternative Medicine NCCAM define CAM as “A group of diverse medical and health care systems, practices and products that are not presently considered as a part of orthodox medicine” [1]. Complementary and alternative medicine refers to practices, approaches, knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises [1]. Each group of CAM is categorized as Alternative medical system, Mind body intervention, biologically based therapies, Manipulative and body based methods and Energy therapies [2].

Although a wonderful advancement in conventional medicine, more than 80% of population of developing countries still relies on traditional medicine or therapies rather than conventional medicine [3]. Particularly chronic and painful illness innovate people to use CAM [1, 4, 5].

Adherence is the measurement of extent to which a patient takes his or her medicines as prescribed by health care

provider and participate actively and voluntarily in therapeutic decision making, developing recommendations regarding medicines and continue to take their medicines as said by prescriber [6, 7]. WHO defines adherence as an extent to which a person’s medication-taking behavior, following a diet and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider [8, 9]. Numerous studies have been reported in past that evaluated complementary and alternative medicines as one of the predictor of adherence [10]. It has been claimed by WHO that the adherence of chronic disease patients was claimed as 50% in developed world and much lower in developing world [10, 11].

Full benefit of medication could be achieved only if patient takes medicines for time being said and dose prescribed by health care provider, study says that rates or levels of adherence is high in patients with acute disease than patients with chronic disease [6]. Chronic diseases are the illnesses which lasts

longer caused by irreversible pathological change and require long term treatment [9].

The influence of CAM on adherence to conventional medicine has been reported in studies conducted worldwide. CAM causes a poor adherence to prescribed medications [12] however, despite of CAM usage adherence to prescribed medication was high [13] and in few studies it has also been reported that CAM use does not influence significantly medication adherence [14].

A number of studies are conducted on CAM usage and its impact on adherence worldwide. Few studies reported that complementary therapies decreases adherence [12]. Shifting concern in Pakistan number of studies has been reported on complementary and alternative medicines its prevalence, types and belief [15] but no study is still reported on impact of Complementary and alternative medicines on adherence in patients with chronic diseases. Therefore, the present study aimed to assess the impact of CAM on adherence in patients with chronic diseases.

METHODOLOGY

Study design, setting and sampling

The cross-sectional study design was used to conduct the study. The patients of diabetes mellitus, hypertension, asthma and

heart diseases were to be selected for participation in the study. 500 subjects were recruited from out-patient departments of Bolan Medical Complex, Hospital; Sandeman Provisional Hospital and different out-patient's clinics of Quetta, Pakistan. The subjects who were diagnosed with any of the above-mentioned chronic diseases from last three months or more and can easily read and write Urdu language (National language of Pakistan), with at least 18 years old and above would make an inclusion criterion of the study. Pregnant ladies diagnosed with pregnancy induce hypertension and gestational diabetes, non-consented patients and who were hospitalized were not selected for study participation.

Ethical consideration

The study participants, according to the National Bioethics Committee Pakistan's guidelines [16] were asked for consent prior to data collection and they were informed of their rights of secrecy of their responses and of leaving the survey at any moment. Moreover, the Research Committee of Faculty of Pharmacy and Health Sciences of University of Baluchistan provided a grant for the conduction of study.

Study instruments

A validated drug attitude inventory DAI 10 questionnaire in Urdu was used to

measure the drug adherence [7]. The original scale consists of 30 questions but a validated short form having 10 questions is also available. The responses of questions are true or false. The six items have answer true and four items rate as false. The correct response is marked as +1 and incorrect response is marked as -1. The total score is sum of positive marks from negative marks. A positive total score (i.e. ≥ 6) showed adherent and negative total score (<6) showed non adherent [17].

Statistical Analysis

The study data was analyzed by using SPSS version 20 [18]. Descriptive statistics were used to describe the demographic and disease characteristics of study subjects. Moreover, they were used to describe the CAM related responses of participants as well. Inferential statistical test that was applied to assess the significance difference between CAM and Adherence was chi square test.

RESULTS

Demographic characteristics of the study participants

The study subjects' demographic characteristics are shown in Table 1 in which it is described the mean age of study participants as (51.0 ± 11.4). Majority of the study subjects were females 200 (62.5 %)

and they were mostly Balochi 103(32.2%) while Punjabi 75(23.4%) and Pakhtoon 73(22.8%) were equally distributed. 149 (46.6%) study population were uneducated followed by matriculation 56(17.5%) and highly educated 31(9.7) % most of study subjects had monthly income >1500 (75.9%).

Disease Characteristics of Study

Participants

Disease characteristics of study participants were tabulated in Table 2. Diseases which were mainly considered in this study includes Diabetes, Hypertension, Heart diseases and Asthma. The proportion of diseases was; diabetes 179(55.9%) hypertension 125(39.6%) heart diseases 12 (3.1%) asthma 3 (0.9%). Majority of the study subjects were reported with no co morbidity 249(77.8%) followed by hypertension 42(13.1%), heart disease 14 (4.4%) and others 15(4.7%).

CAM related responses of study participants

The CAM related responses of participants were included in Table 3. Among 320 participants 254(79.4%) were CAM non users while remaining 66(20.6%) were CAM users. Majority of CAM users used herbs 43(13.4%) followed by spiritual therapy 11(3.4%) and homeopathy 6 (1.9%).

Medication Adherence

The adherence of study subjects were measured by using drug attitude inventory (DAI 10). According to scale the score ≥ 6 is considered as adherent and score <6 is considered as non adherent. Adherence score is tabulated in Table 4. Among 320 participants 243(75.8%) were adherent and 77(24.1%) were not adherent.

Relation between CAM related questions and adherence

Association between CAM related questions and adherence was represented in Table 5. Among all CAM related questions, the significant differences have been found out in type of CAM use with p value 0.02.

Table 1: Demographic Characteristics of Study Participants

Characteristics	Frequency	Percentage
Age (51.0±11.4)		
<30	13	4.1
31_45	91	28.4
46_55	132	41.3
56_65	58	18.1
>65	26	8.1
Gender		
Male	120	37.5
Female	200	62.5
Marital status		
Married	313	97.8
Unmarried	07	2.2
Ethnicity		
Urdu	33	10.3
Balochi	103	32.2
Punjabi	75	23.4
Pakhtoon	73	22.8
Persian	01	0.3
Others	35	10.9
Educational status		
No education	149	46.6
religious	17	5.3
primary	26	8.1
metric	56	17.5
intermediate	19	5.9
graduate	22	6.9
higher education	31	9.7
Monthly income		
<8000	03	0.9
8000-15000	26	8.1
>15000	243	75.9
business	40	12.5
other	08	2.5

Table 2: Disease Characteristics of Respondents

Diseases characteristics	Frequency n=320	Percentage %
Chronic disease		
diabetes mellitus	179	55.9
heart diseases	12	3.8
blood pressure	125	39.1
asthma	3	.9
other	1	.3
Co morbidity		
Hypertension	42	13.1
heart disease	14	4.4
others	15	4.7
none	249	77.8
Disease duration (8.4 ±6.2)		
1_ 10 years	238	74.4
11_ 20 years	70	21.9
20_ 25 years	5	1.6
> 25 years	7	2.2
Duration of treatment (8.0±6.0)		
< 1 year	1	.3
1_ 10 years	242	75.6
11_ 20 years	65	20.3
20_ 25 years	6	1.9
> 25 years	6	1.9

Table 3: CAM related responses of respondents

CAM related questions	Frequency n=320	Percentage %
Are you using CAM		
Yes	66	20.6
No	254	79.4
Type of CAM use		
Herbs	43	13.4
spiritual therapy	11	3.4
homeopathy	06	1.9
others	06	1.9
Duration of CAM use		
< 1 year	01	0.3
1_ 5 years	36	11.3
6_ 10 years	24	7.5
> 10 years	05	1.6
Cost of treatment		
no cost	09	2.8
< 500	50	15.6
500_ 1000	07	2.2

Table 4: Adherence Score

Adherence	Frequency n=320	Percentage %
Adherent	243	75.9
Non adherent	77	24.1

Table 5: Association between CAM Related Questions and Adherence

CAM related questions	Adherence		Frequency =n	P value
	Adherent	Non adherent		
Type of CAM use				
Herbs	25	18	43	0.027
Spiritual therapy	8	3	11	
homeopathy	5	1	6	
others	6	0	6	
Duration of CAM use				
< 1 year	0	1	1	0.15
1_5 years	23	13	36	
6_10 years	17	7	24	
> 10 years	4	1	5	
Monthly cost on treatment				
no cost	6	3	9	0.15
< 500	32	18	50	
500_ 1000	6	01	7	

DISCUSSION

The present study conducted with an objective of evaluating the impact of traditional medicine on adherence in patients with chronic diseases. The study revealed that CAM has no influences on adherence (i.e. CAM users and non-users have same adherence level with p value <0.05).

There has been no previous study reported in Pakistan which could define the influence of CAM on medication adherence and which could be used to compare the findings of this present study. In the context of Pakistani population the impact of CAM on adherence is still uncertain as there was no previous study reported in the same area that can be compared with present study. However, study findings correspond significantly with other similar studies conducted in different developed Countries. One study conducted on inflammatory bowel diseases showed no impact of CAM on

adherence [14], and other study conducted on mental health patients showing the same results [19]. Some previous studies showed negative impact of CAM on adherence in different chronic diseases [10, 12, 20]. The rationale behind the result of present study is limited sample size of CAM users and exposure is limited to specific areas of Quetta, Pakistan.

The present study demonstrated that most frequent type of CAM use was biological based therapy (13.4%) followed by spiritual therapy (3.4%). The similar findings reported by MJ Rabito [21]. The distribution of whole medical system (homeopathy) and skill-based therapy (cupping) was equally distributed (1.9%). The increasing frequency of CAM usage among world population is due to their belief to eliminate the side effects of allopathy medicines and being more effective for their complaints [22].

The current study also showed that a type of CAM use effect adherence to prescribed medications with (p value 0.02), while other CAM related questions have no association with adherence.

Among type of CAM use the most widely type of CAM use was herbal medicines. Majority of Diabetic population use different kinds of herbs to control their sugar level. The finding is supported by another study [23]. The highest ratio of herbal supplements is its accessibility and cultural attitude. The second most frequent type of CAM was spiritual therapy. According to current study this type of CAM also decreases adherence, this is supported by Kretchy [24] who found that most of hypertensive patients used spiritual therapy to control their blood pressure and are non-adherent towards anti-hypertensive drugs. The intentions towards religious therapy is due to our religious beliefs and trust in divine healing is the rationale of low adherence.

The present study determined that in skill-based therapy the most common procedure used was cupping (hajama) particularly to maintain blood pressure. Cupping is practiced in different cultures and evidence supports its practice regardless of its common use but it also improves Quality of Life (al tabakha).

Although the current study has demonstrated constructive findings which may contribute to better understanding of traditional medicine impact on medication adherence but the study had few limitations like a small sample size and the hospitalized patients were not approached. Therefore, it is recommended that same study should be conducted on a larger and diverse population.

CONCLUSION

In conclusion, complementary and alternative medicine has no impact on adherence to prescribed medications. When relationship seen between CAM related questions and adherence, no association is found except type of CAM use, as type of CAM use is significantly associated with adherence.

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