

Original Research Article

Assessment of the relationship between depression and treatment compliance in chronically-ill patients in Jeddah, Saudi Arabia

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Abstract

Purpose: To find the relationship between depression, treatment adherence and lifestyle changes in chronically-ill patients residing in Jeddah, Saudi Arabia.

Methods: A cross-sectional study was conducted. A self-administered questionnaire was used to collect data from patients of multi-healthcare centers located in Jeddah. The questionnaire aimed to collect the information regarding patients' levels of medication compliance, patients' capacity to cope with the disease and adherence to medication, along with their depression level.

Results: Of the overall sample size of 439 patients, 43.1 % were suffering from hypertension, 37.8 % were diabetic and 33.7 % had hyperlipidemia. Besides, total scores of Patient Health Questionnaire-9 (PHQ-9) showed that approximately 5 % patients were severely depressed, 8 % had moderately severe depression, 27 % had moderate depression, and 60 % had mild depression. Compliance scale data revealed that 38 % patients showed low compliance, 51 % showed partial compliance, and 11 % showed high compliance. Also, a significant inverse relationship between depression and compliance scales ($r_s = -0.221$, $p = 0.004$) was observed.

Conclusion: The results show an inverse association between depression and medication adherence in patients with chronic disease in Jeddah. Therefore, clinicians are advised to assess the level of depression in chronically-ill patients in order to improve their adherence to medicine.

Keywords: Chronic illness, Depression, Medication adherence, Treatment compliance

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INTRODUCTION

Chronic diseases are likely to be managed through medications; however, in certain cases the approach to enhance adherence to long-term therapy remains poor [1]. According to the data obtained from the Middle Eastern countries,

patients' adherence to medication ranges between 1.4 % to 88 % which corresponded to the methods used for assessing and quantifying the adherence [2]. Certain factors such as; patient's knowledge about a disease, beliefs related to medications, the large gap from therapeutic goals, perception of self-expertise,

and attitude towards a disease play a significant role in influencing patient's adherence to medication [3].

Notably, individuals suffering from multiple comorbid conditions such as depression tend to show increased adherence to statins [4]. Seo *et al* [5] defined depression as a state of a persistent feeling of sadness and loss of interest, which is considered as a mental illness. Several studies have shown that in most cases, comorbid depression results in minimal or no use of medicine along with patient's non-compliance to treatment [6-7]. It may also result in costly hospital admissions, which may be based on preventable events, and loss of productivity due to illness [8].

The initial period of treatment is specifically critical to ensure patient's adherence to treatment and is associated with the increased risks of relapse, medication discontinuation, high economic burden, vulnerability to suicide, and treatment dropout even though nonadherence is challenging within the treatment [9]. Since patient's adherence to medication and early appropriate antidepressant dosing are useful in patient's recovery from depression, they are effective in enhancing the long-term consequences of patients with depression.

Patient's negative attitude serve as the major factor that influence adherence to medication and treatment. As in the case of older adults, certain challenges such as distance from home to physician's office and cost of medications hinder the treatment process, still treatment discontinuation and poorer medication adherence among older adults with depression is highly predicted by perceived stigma [10]. Poor adherence is further due to low perceived symptom severity and; therefore, many older adults do not seek mental health help even when distress is comprehended [11]. Nonadherent behaviors are more likely to result when perceived costs outweigh perceived benefits [12].

Patient's compliance to medication is gaining much acknowledgment as an area of research with a persistent increase in the prevalence of chronic diseases. Most of these studies have been conducted in developed countries while there is no sufficient evidence on the subject. The extensive literature on medication compliance in Saudi Arabia has mostly emphasized on few chronic diseases such as diabetes, hypertension, obesity, and low levels of vitamin-D, while other chronic conditions such as hyperlipidemia, heart diseases, osteoporosis, thyroid disease, and rheumatoid arthritis have

not been much explored. On this premise, this study sought to identify the relationship between depression and adherence to management and lifestyle changes among chronically ill patients in Jeddah population.

METHODS

Study design and population

The current study followed a cross-sectional study design and was conducted in multi healthcare centers located in Jeddah. The overall duration to conduct this study was two months, while International guidelines for human studies as stated by International Ethical Guidelines for Health-related Research Involving Humans were followed [13]. The Research Ethics Committee, Faculty of Medicine, Jeddah approved this study (approval no. D/39/89927).

The study population included patients with the following characteristics; a) patients who were native Arabic speakers, b) patients aged above 15 years c) patients suffering from a chronic illness which requires life time use of medicines. A total of 502 patients were recruited in this regard. Patients were directed to have a brief overview of the study. 63 patients declined participating in the study due to time limitation, leaving 439 patients to be included in statistical analysis. A written consent was signed by participants after confirming their participation. The confirmed participants were assured of the confidentiality of the information they provided and guided by research assistance about how to complete the questionnaire.

Data on patient's chronic illnesses such as; hypertension, diabetes mellitus, asthma, hyperlipidemia, heart diseases, osteoporosis, thyroid disease, rheumatoid arthritis, and other diseases that require life-time use of medication were recorded. Demographic data including age, gender, nationality, education, number of chronic diseases, duration of illness, and chronic disease were also noted.

Treatment tool and parameters

The Patient Health Questionnaire (PHQ-9) was used as a tool to assess depression in patients. It is considered an adequate and reliable tool for self-administration. The responses were recorded on Likert scale ranging between 0 and 3. The obtained scores were added to produce a total score ranging from 0 - 27. The higher scores indicated greater depressive symptoms. The scores greater than 5, 10, 15, or 20 refer to

mild, moderate, moderately severe or severe depression, respectively [14].

The evaluation of medication adherence was performed based on five categories including diet-related adherence, exercise-related adherence, medicine-related adherence, measurement-related adherence, and smoking-related adherence. It consists of one general scale that was numbered according to the level of medication compliance from 1 - 5 (1 = noncompliance and 5 = fully compliance). The benefit of this scale is to let the patient generally report his/her level of compliance, followed by 8 items designed to assess the extent of adherence to treatment, food, and lifestyle. Patient's level of compliance was assessed following the score break up criteria, where patients who scored between 24-20 indicated high level of compliance, while those scored between 19-13 and 12-8 indicated partial and low compliance respectively.

Statistical analysis

The data were coded and analyzed using SPSS. The differences between patients' demographics, type and number of the disease, duration of illness, and a number of medications were calculated through nonparametric analysis tests such as Mann-Whitney and Kruskal-Wallis. Spearman's Correlation test was used to find the associations that may exist between the outcome's measures of the study. The significance level was set at $p < 0.05$. The reliability of the study tool was checked through Cronbach's alpha test.

RESULTS

The study results showed that 288 (65.6 %) patients were female and 151 (34.4 %) of them were male. The complete demographic profile of the respondents is presented in Table 1. It shows that 43.1 % of the study patients were diagnosed with hypertension, 37.8 % complained of diabetes, and 33.7 % had hyperlipidemia.

The patient's responses to the overall questionnaire's items showed internal consistency reliability measured by Cronbach's $\alpha = 0.71$. The Cronbach test showed that the 9 items of PHQ showed very good reliability ($\alpha = 0.85$); whereas, 8 items of compliance showed a moderate reliability when tested by Cronbach's ($\alpha = 0.67$). Total scores of PHQ-9 showed that 22 (5 %) patients were having severe depression, 35 (8 %) had moderate to severe depression, 119 (27 %) had moderate depression, and 263 (60 %) had mild depression (Table 1). The

results further showed that female patients scored higher on depression scale than male patients with significant differences ($P = 0.037$).

Table 1: Demographic profile of the respondents

Variable		N	%
Sex	Male	151	34.4
	Female	288	65.6
Age	< 30	75	17.1
	31-60	317	72.2
	>61	47	10.7
Nationality	Saudi	339	77.2
	Non-Saudi	100	22.8
Educational level	Less than high school	108	24.6
	High school	120	27.3
	University and above	211	48.1
Number of chronic diseases	1 disease	207	47.2
	2 diseases	97	22.1
	3 diseases	76	17.3
	>3 diseases	59	13.4
Duration of illness	< 6 months	36	8.2
	6-24 months	75	17.1
	>24 months	328	74.7
Chronic Disease	Hypertension	189	43.1
	DM	166	37.8
	Hyperlipidemia	148	33.7
	Heart Diseases	74	16.9
	Osteoporosis	78	17.8
	Thyroid	85	19.4
	Rheumatoid Arthritis	39	8.9
	Asthma	51	11.6
	Others	64	14.6
	Depression	Mild	263
Moderate		119	27
Moderately severe		35	8
Severe		22	5
Adherence	Low compliance	166	38
	Partial compliance	224	51
	High compliance	49	11

Moreover, patients suffering from thyroid disease ($P = 0.014$) and those with osteoporosis ($p = 0.003$) scored higher on the depression scale, as compared to other types of chronic diseases. However, there was no difference in depression score with respect to nationality, educational level, and age, duration of illness, number of chronic diseases, and number of medications used. Results of the compliance scale showed that 166 (38 %) patients had low compliance level, while 224 (51 %) and 49 (11 %) showed partial and high compliance respectively (Table 1).

In statistical analysis, patients who showed higher compliance were older than 60 years ($P = 0.003$), suffering from the chronic disease more than 2 years ($P = 0.038$), and taking more than 6

medications ($P = 0.012$). According to the type of the disease, there was no significant difference in compliance scale except for patients with diabetes mellitus who showed higher compliance ($P = 0.038$). Rheumatoid Arthritis showed lower compliance ($P = 0.038$), as compared to other diseases. Interestingly, analysis of the results showed that Saudi patients reported lower compliance total score, as compared to non-Saudi patients ($P = 0.004$). However, there was no difference in compliance according to sex, educational level, number of chronic diseases, and type of the disease. Patients who rated themselves as low or non-compliant in the general adherence question received lower compliance total score ($P < 0.001$) (Figure 1). There was a significant inverse relationship between compliance scales and depression ($r_s = -0.221, p = 0.004$).



Figure 1: Mean rank of compliance score

DISCUSSION

The results of the present study have shown an inverse relationship between depression and medication adherence in chronically ill patients in Jeddah, Saudi Arabia. Patients who were classified as non-depressed, scored higher in compliance scale in comparison with patients who were severely depressed. This is completely in agreement with several studies, which investigated this relationship between depression and compliance in other countries. For instance, a meta-analysis conducted by Gernard *et al* [14] included 31 studies, with 18,245 participants showed a statistically significant relationship between depression and treatment compliance. Additionally, the study also revealed that patients suffering from hypertension or hyperlipidemia

with depression were non-adherent as those with diabetes. The type of chronic disease in this study was also found to have an effect on patients' total scores of depression such as those patients with thyroid disease and those with osteoporosis reported higher depression scores than those of other types of chronic diseases. In the present study, the PHQ-9 test represented the last 14 days of a patient's life and stated that it needs to be repeated every two weeks to diagnose depression state.

A similar study conducted by Lemay *et al* [15] showed that there is a significant negative impact of beliefs towards medication on its adherence among chronically ill patients. This result was also supported by the present study. This clearly depicts that negative beliefs about medication contribute to suboptimal adherence towards medication as a significant predictor. Al-Foraih and Somerset [16] showed that less adherence to medicines was found in patients that were not severely ill, in comparison to the older patients suffering from several comorbid conditions as they are more concerned with the treatment regimen as they are aware of their own mortality.

The present study has shown no difference in the level of compliance with respect to sex, education level, number of chronic diseases, and type of the disease. However, a study conducted by Lemay *et al* [15] indicated that patients with lower education levels and higher illness severity were more likely to have negative beliefs about medications. Moreover, the impact of nationality on medication adherence explained that there is a significant influence of cultural background on patients' beliefs about medication [15]. The current study showed that about one-third of patients showed good compliance and adherence towards medication. However, a recent study conducted by Acar and Gunes [17] showed that 50.8 % of the patients used their medicines regularly and their adherence to drug treatment was better than their adherence to diet and fluid restriction. The results of the present study showed satisfactory results related to patients' understanding of the disease, treatment benefit, and their adherence to medicine.

Limitations of the study

The study results are limited as the data did not include whether the patient was taking any antidepressant medication or psychiatric drugs. Future studies need to focus on the quality of life of the patients suffering from osteoporosis and asthma. Moreover, such studies also need to investigate the impact of taking antidepressant medication or psychiatric drugs.

CONCLUSION

The present study investigated the relationship between depression and treatment adherence among chronically ill patients in Jeddah. It indicates an inverse association between depression and medication compliance among them. Therefore, clinicians are encouraged to assess the status of depression in chronically ill-patients to improve their adherence.

DECLARATIONS

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Conflict of interest

No conflict of interest is associated with this work.

Contribution of authors

We declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by the authors.

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