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The Role of Doctor-Patient Communication Skills in Predicting Treatment Adherence

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ABSTRACT

Background and Objective: The level of patient adherence to treatment and medication orders is one of the important factors influencing the effectiveness of medical treatments. The aim of this study is to investigate the relationship between doctor-patient communication skills and the level of adherence to medication orders after discharge from the hospital.

Methods: This cross-sectional study was conducted on 284 patients admitted to the surgery and urology departments of Shahid Beheshti Hospital in Babol, where at least 48 hours had passed since their admission. Patients completed two questionnaires of doctor-patient communication skills (range 21-70) and Burton communication skills (range 18-90) in the hospital. Then, two weeks after discharge, the patients answered the two questionnaires of general adherence and the Morisky Medication Adherence Scale online or by telephone contact, and the results were analyzed.

Findings: The mean age of the participating patients was 50.65±18.20 years and the score of general adherence to treatment orders was 24.26±5.77 (range 7-30) and medication adherence was 8.54±2.91 (range 1-11). 222 patients (78.2%) had high adherence to treatment orders. Stepwise regression analysis showed that doctors' communication skills were a positive factor in medication adherence ($p<0.001$, ß=0.336) and adherence to treatment orders ($p<0.001$, ß=0.331). Moreover, patients' communication skills had a positive effect on medication adherence ($p=0.01$, ß=0.137) and general adherence to treatment orders ($p<0.001$, ß=0.205).

Conclusion: The results of the study showed that the communication skills of doctors and patients is a positive predictor of adherence to treatment and medication orders after discharge from the hospital.

Keywords: *Treatment Adherence, Medication Adherence, Communication Skills, Doctor, Patient.*

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Introduction

Treatment adherence is the behavior based on which the patient correctly follows medical recommendations. Although “treatment adherence” is generally referred to as “medication adherence”, it also includes situations such as following medical recommendations, self-care, guided exercises, or therapy sessions. Following medical orders is one of the most important effective and cost-effective (cost-benefit) methods for improving treatment outcomes that predict the rate of improvement or disability of patients over time (1). The mean rate of adherence to treatment in different diseases is reported to be different, and this rate for chronic diseases is reported to be about 37-55% (2, 3). In Iranian society, the level of adherence to treatment and medication orders is low. In a study, the rate of adherence to medication orders in diabetic patients was reported to be 82% (4). In addition, a meta-analysis study has reported 33% adherence to medication treatments in hypertensive patients (5).

Not following treatment orders is one of the important and multifaceted problems in the health field, which is one of the important reasons for treatment failure, increased complications, prolonging the course of the disease, and increasing health costs (6). By not following the treatment recommendations, the patients actually allow their condition to get longer and worse (7). The most important reasons for not following treatment orders are the complexity of new treatment regimens, lack of understanding of treatment benefits, the occurrence of unpredicted side effects, low treatment satisfaction, drug prescription costs, and lack of proper communication between the patient and the health care providers (8, 9).

Factors related to the patient and the doctor are the important factors that influence treatment adherence. Patient-related factors include the beliefs regarding disease controllability and disease complications. A study has reported that with the increase in beliefs related to the controllability of the disease, and the awareness about the complications of the disease increased the level of medication adherence among patients (10). Doctors also play an important role in increasing patient adherence to treatment orders. By using appropriate psychological methods, doctors can give medical advice to patients so that they accept it more eagerly. Also, the effective relationship between the doctor and the patient, which is based on trust, partnership, and mutual responsibility, can have a significant effect on increasing treatment adherence (11-13).

Although evidence shows that doctor-patient communication is one of the important factors affecting treatment adherence in patients (12-14), there are few prospective studies in this area, especially after discharge from the hospital. In addition, there is limited information about the relationship between "patient communication skills" and "doctor communication skills" on adherence to treatment orders after discharge. Considering the high prevalence of non-compliance with treatment orders in Iran and the lack of Iranian studies regarding the role of doctor-patient communication skills on the level of adherence to treatment orders, a study was designed to respond to this knowledge gap. The aim of this study is to investigate the relationship between the doctor-patient communication skills and adherence to treatment and medication recommendations after discharge from the hospital.

Methods

This prospective descriptive study was carried out from December 2019 to May 2020 in Shahid Beheshti Hospital in Babol after approval by the ethics committee of Babol University of Medical Sciences with the code IR.MUBABOL.HRI.REC.1398.269. Patients entered the study after at least 48 hours of hospitalization in the studied departments, reading and writing literacy, stable general condition to fill the questionnaire and satisfaction. Patients with a history of severe psychiatric disorders, delirium and dementia were

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excluded from the study. The sample size, based on OR=1.19, 0.4 ratio of treatment non-adherence based on previous studies (14) with 80% power and 95% confidence interval and 20% dropout rate in different stages, was considered 150 patients in each department and 300 patients in the two departments. Convenience sampling was adopted according to the inclusion and exclusion criteria during the study period. In this study, there were two independent variables under the headings of "doctor communication skills", "patient communication skills", and two dependent variables including "adherence to general treatment" and "adherence to medication treatment", and all four variables were quantitatively measured by a questionnaire.

This study consisted of two stages. In the first stage, the main researcher went to the inpatient departments of general surgery and urology in Shahid Beheshti Hospital and explained the objectives of the research to the inpatients who met the conditions to enter the study and invited them to participate in the study. He/she also asked the patients for their phone numbers connected to WhatsApp/Telegram and their e-mail addresses, and informed them of the two-stage study and that they would be contacted after being discharged from the hospital. Out of 350 patients who underwent the inclusion/exclusion criteria interview, 55 patients were not able to answer and were not included in the study due to illiteracy and lack of ability to read and write, and some were not able to answer due to their deteriorating condition. 295 patients met the conditions for entering the study and gave written informed consent. At this stage, the main researcher completed the demographic information of the patients (including age, education, marital status, previous medical history, surgical history, number of hospitalizations) with an interview. Then, the researcher asked the patients to complete two research questionnaires; Doctor-Patient Communication Skills Questionnaire and Burton's Communication Skills Questionnaire. Patients evaluated their views on the level of communication skills of their treating physician by completing the Physician-Patient Communication Scale. This questionnaire, which consists of 11 questions, the patient scores his/her doctor's communication skills on a seven-point Likert scale from weak to excellent based on 10 questions. In the 11th question, the patient gives his/her general opinion about the consultation with the doctor. The range of scores is 21 to 70 (15). The validity of the tool has been confirmed in an Iranian study (16). In addition, patients self-assessed their communication skills with others by completing "Burton's Communication Skills Questionnaire". This questionnaire contains 18 questions that were invented by Burton (1990). The range of scores is 18 to 90 (17). The validity of the tool was reported as 0.86 in a study in Iran (18). In the present study, the validity of Burton's questionnaire was 0.81.

The second stage of the study included the evaluation of the patients' "adherence to medical treatment" after discharge from the hospital. The main researcher called the patients 2 to 4 weeks after discharge and while explaining the purpose of the follow-up, sent two questionnaires to the patients' WhatsApp/Telegram or email. One of the questionnaires was the General Adherence Scale (GAS). This scale was designed by Hays in 1994. This questionnaire has five questions, and the patient answers "always to never" to each question on a seven-point Likert scale. The range of scores is 7-30. In the study of Hays, its validity was reported as 0.81 (19). In an Iranian study, its reliability was reported as 0.68 (20). Another questionnaire was the eight-item Morisky Medication Adherence Scale (MMAS-8-Item), which aimed to measure the level of adherence to medication orders. This questionnaire has eight questions with a total score of 1-11. This scale is considered as 8 (high adherence), 6-8 (medium adherence), <6 (low adherence). The validity of this questionnaire has been reported in previous studies (21, 22).

SPSS 25.0 software (SPSS, Chicago, IL, USA) and univariate tests such as T-Test, Pearson's correlation coefficient and stepwise regression models were used for data analysis, and $p<0.05$ was considered significant.

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Results

The demographic characteristics of the patients show that the mean age of the participating patients was 50.65±18.20 years. The majority of patients were male (241, 84.9%) and 57 (20%) had university education (Table 1).

Table 1. Demographic characteristics of patients admitted to Shahid Beheshti Hospital, Babol

Variable	Number(%)
Department	
Surgery	140(49.3)
Urology	144(50.7)
Gender	
Man	241(84.9)
Woman	43(15.1)
Marital status	
Single	55(19.4)
Married	229(80.6)
Place of living	
City	132(46.5)
Village	152(53.5)
Number of hospitalizations	
Once	167(58.8)
One to five times	107(37.7)
More than five times	10(3.5)
History of surgery	
No	229(80.6)
Yes	55(19.4)
Education	
Elementary	106(37.3)
High school	121(42.7)
University	57(20)
Job	
Woman	
Housewife	35(81.4)
Employee	8(18.6)
Man	
Employee	88(36.5)
Farmer	39(16.2)
Self-Employed	97(40.2)
Unemployed	17(7.1)
History of previous disease	
No	149(52.5)
Yes	135(47.5)
Emergency situation	
No	140(49.3)
Yes	144(50.7)

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The overall score of patients' general adherence to treatment orders was 24.26±5.77 (range 7-30) and medication adherence was 8.54±2.91 (range 1-11). 78.2% of patients had high medication adherence, 3.9% of patients had moderate adherence, and 18% of patients had poor adherence. The mean score of doctors' communication skills was high (61.11±14.32 in the range of scores 21-70). Moreover, the mean score of patients' communication skills was high (62±12.61 in the range of scores 18-90).

The results of the stepwise regression test showed that this model explains about 30.3% (R=0.303) of the factors affecting treatment adherence. Furthermore, doctors' communication skills (p<0.001, ß=0.331) and patients' communication skills (p<0.001, ß=0.205) are positive factors for adherence to treatment orders. On the contrary, the two factors of being hospitalized for the first time (p=0.002, ß=-0.163) and having a disease requiring long-term follow-up of more than one year (p=0.007, ß=-0.147) showed negative effects on following general treatment orders after discharge from the hospital (Table 2).

The results of the stepwise regression test showed that this model explains about 35.35% (R=0.355) of the factors affecting medication adherence. The communication skills of doctors (p<0.001, ß=0.336) and the communication skills of patients (p=0.01, ß=0.137) are positive factors of general adherence to treatment orders. On the contrary, the two factors of being hospitalized for the first time (p=0.016, ß=-0.122) and having a disease requiring long-term follow-up over one year (p<0.001, ß=-0.285) had a negative effect on following general treatment orders after discharge from the hospital (Table 3).

Table 2. Factors affecting patients' general adherence to treatment orders after discharge from the hospital (last step of regression analysis)

	Non-standard coefficients		Standard coefficients	t	p-value
	ß	The standard deviation			
First hospitalization	-1.97	0.569	-0.163	-3.156	0.002
Patient communication skills	0.089	0.023	0.205	3.80	<0.001
Doctor communication skills	0.143	0.022	0.331	6.36	<0.001
The need for follow-up	-2.20	0.815	-0.147	-2.70	0.007

Table 3. Factors affecting patients' adherence to medication orders after discharge from the hospital (last step of regression analysis)

	Non-standard coefficients		Standard coefficients	t	p-value
	ß	The standard deviation	ß		
Patient communication skills	0.032	0.012	0.137	2.60	0.010
Doctor communication skills	0.078	0.012	0.336	6.64	<0.001
First hospitalization	-0.724	0.299	-0.122	-2.42	0.016
The need for follow-up	-2.30	0.427	-0.285	-5.39	<0.001

Discussion

Based on the results of this study, the communication skill of doctors and patients is one of the factors that have a positive effect on the level of compliance with treatment and medication orders after discharge from the hospital. In this study, patients' adherence to treatment and medication orders after discharge from the hospital was high. Some studies, consistent with our results, reported high adherence rates. In a review

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article, it was reported that 38.5 to 93.1% of treatment adherence in diabetic patients was higher than 80% in 22% of the studies (23). However, in some studies, the level of adherence to treatment orders was lower than our results. Gholamaliei et al. reported in a study that 17.3% of patients had good medication adherence, 3.23% had moderate medication adherence, and 59.4% had poor medication adherence (10). In explaining the difference in treatment adherence in this report compared to previous studies, one can mention reasons such as different definitions of treatment adherence such as medication or non-medication adherence or combined medication/non-medication adherence, different patient populations, acute and chronic diseases, different measurement tools and different cut-off points.

The results of this study showed that from the patients' point of view, the communication skills of doctors were reported to be high. In addition, the communication skills of the patients were also high. In some reports, consistent with these findings, patients were highly satisfied with the communication skills of their doctors. A study on 102 cardiac patients reported that 76.5% of patients were highly satisfied with the communication skills of doctors (24). Some patients have reported their doctors' communication skills as insufficient (25).

Our results showed that the communication skills of doctors and patients are important positive and influential factors that increase medication adherence and general adherence to treatment orders after discharge from the hospital. Patients who are hospitalized for the first time and those who need to be followed up for more than one year are among the factors that reduce adherence to medication and non-medication treatments after discharge. In line with these results, a study showed that the doctor-patient relationship is related to compliance with antibiotic use in patients with skin condition and reduces the risk of non-compliance with medical prescriptions by 16% (26). Furthermore, a study showed that patients' characteristics such as health literacy and their effective communication with doctors play an important role in following treatment orders (27). Some evidence supports the findings of this study according to which the disease characteristics such as the need for long follow-up and chronicity have a negative effect on following treatment orders (28).

There are several reasons why doctors with higher communication skills lead to higher levels of adherence to treatment orders. First, doctors with higher communication skills, by using appropriate psychological methods, can convey medical recommendations to patients in a way that the patients follow them more willingly. Second, a favorable patient-doctor relationship can establish a proper therapeutic relationship and create more empathy between the patient and the doctor. It also causes the formation of trust between the doctor and the patient, and as a result, the patient obeys medical orders without worry (29). Third, in the context of a favorable doctor-patient relationship, mutual clinical decisions between the doctor and the patient increase, which has a great positive effect on following medical recommendations (25).

The results of this study recommend that doctors pay more attention to increasing patient-patient communication skills, because doctors with high communication skills can diagnose patients' problems sooner and provide better support to their patients and prevent medical crises and costly interventions. As a result, doctors can provide higher quality medical services and better satisfaction, and lower costs of care. Finally, good doctor-patient communication is the key to achieve mutual clinical decision-making between doctors and patients and to follow medical orders better and achieve the agreed treatment goals and achieve a higher quality of life for patients.

This study included some limitations. First of all, this research was conducted in two surgical departments where the patients are younger and have fewer underlying diseases compared to other departments such as the internal department, and about half of the patients had underlying problems. Therefore, the patients' medications were mainly related to their surgery and not to the underlying

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problem. It is recommended that in future studies, follow-up after discharge in different hospital departments and different types of diseases be considered. Second, the evaluation of doctors' communication skills was done only from the patients' point of view in this study. It is recommended that in future studies, the views of doctors and patients regarding doctor-patient communication skills be evaluated together. Third, the majority of patients in this study were men, so the generalization of the findings to women is limited.

As a result, the majority of patients had high adherence to medication and treatment orders after discharge from the hospital. From the point of view of patients, the level of communication skills of doctors is reported to be high. The communication skills of doctors and patients is one of the important positive and influential factors while first-time hospitalization and the need for follow-up for more than one year were the negative and influential factors that reduce medication adherence and general adherence to treatment orders after discharge from the hospital. This study suggests that one of the ways to increase patients' adherence to medical and pharmaceutical orders after discharge is to improve the communication skills of doctors and patients in teaching hospitals.

Conflict of interest: The authors have no conflict of interest.

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