

## The Effect of Information Therapy on Treatment Adherence among Patients Referred to Addiction Treatment Centers

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### Original Article

#### Abstract

**Background:** The low level of drug adherence in addicts who are quitting is one of the biggest challenges in the treatment and management of this disease. Therefore, this study aimed to evaluate the effect of information therapy on adherence to treatment among the patients in addiction treatment centers.

**Methods:** The present quasi-experimental study was performed on 60 patients referred to addiction treatment centers in Jiroft City, Iran. The control and experimental groups were selected using simple random sampling method. The 8-item Morisky Medication Adherence Scale was used for data collection. The level of adherence to treatment was assessed before and after the intervention, which consisted of 6 one-hour training sessions per week.

**Findings:** The adherence to medication was low in both experimental and control groups before the notification. However, the chi-square value obtained by comparing the frequencies of the experimental and control groups in three variables of adherence level (high, moderate, and low) was 9.84 which was statistically significant ( $P = 0.007$ ). Therefore, there was a significant difference between the experimental and control groups after information therapy. In fact, the information in the experimental group had a significant and positive effect.

**Conclusion:** Because of the low level of adherence to treatment, it is recommended to use information therapy to give information on timely and correct use of drugs as well as its importance in the treatment of addiction; so that the level of adherence would improve.

**Keywords:** Treatment adherence and compliance; Information therapy; Patient compliance; Substance abuse treatment centers

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## Introduction

Human beings have used drugs for many years in various ways hoping to reduce their suffering or change their states of consciousness.<sup>1</sup> In fact, drug dependency has nowadays become a personal, social, and health problem threatening human resources and national capitals in many countries.<sup>2</sup> According to the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders, the main characteristic of drug use disorder is a set of cognitive, behavioral, and physiological symptoms that indicate a person continues to consume the drug despite many drug-related problems.<sup>3</sup> An important characteristic of drug use disorders is the fundamental change in brain circuits that may continue after detoxification, especially in people with a severe disorder. The behavioral effects of these brain changes may be manifested in frequent relapses and strong enthusiasm for drug use when people face drug-related stimuli. These continuous effects of the drug may be improved by long-term therapies.<sup>4</sup>

The significance of the role of information in health, treatment, and prevention of diseases is evident for everyone. Besides treatment measures, having knowledge and information on the disease is crucial to the patient and his/her family. Having right information on the disease helps most people adhere to their everyday behaviors, which can improve their treatment process or prevent some diseases. For this reason, information therapy has emerged in recent years as a key source of access to accurate information related to diseases. This method improves patients' access to the medical information related to their disease.<sup>1</sup>

The information therapy is a combination of knowledge, and treatment librarianship and information as well as healthcare and medical aspects. Information therapy can reduce the use of healthcare resources, because it can increase people's general knowledge of their health and help them develop a sense of responsibility for their own health.<sup>5</sup> Through appropriate information therapy, the patient is able to choose a healthy lifestyle, obtain evidence-based information, select appropriate healthcare services, adopt self-management methods, choose a health plan for him/herself and his/her family,

and select the desired physician and hospital.<sup>4</sup> It has a significant impact on the treatment of the mental illnesses, especially addiction.<sup>6</sup>

Addiction can be considered as a biological, psychological, social, and spiritual phenomenon. Unfortunately, individuals may resort to drug abuse to escape personal and social problems. Drug abuse is one of the social and public health problems, which imposes a significant burden on the community.<sup>7</sup>

The drug addiction results in unemployment, crime, family problems, and disease transmission. Addiction is a multifactorial disorder with chronic, recurrent, preventable and treatable symptoms. It is one of the most important psychiatric illnesses affecting one's cognition, emotion, understanding, and other behavioral dimensions;<sup>8</sup> moreover, it jeopardizes the social, economic, political, and cultural health of the community.<sup>9</sup> Based on the United Nations (UNs) Office on Drugs Control Program report in 2017, 29.5 million people around the world have drug abuse disorders. Iran is among the countries facing this serious problem, and according to the latest statistics, the number of drug users is estimated to be around 2.1 million.<sup>10</sup> Due to the high prevalence of drug use in Iran, one of the health priorities is to take measures on this phenomenon. Several methods have been used so far in different societies to prevent and treat drug addiction, but none has been successful in solving this problem. Thus, strategic solutions to increase people's adherence to treatment should be adopted to combat this phenomenon.<sup>6</sup>

Adherence to treatment is one of the important factors in achieving the ultimate goal of any medical prescription, recommendation, and treatment.<sup>11</sup> Studies conducted in this regard have shown that although demographic factors (age, gender, income level, and place of residence) are effective in adhering to treatment; patient perception of the potential benefits of the treatment has also a special importance.<sup>12</sup>

The methods used to increase patients' acceptance and adherence to treatment include health belief education models, health decision-making methods, various counseling processes, and information therapy. The results of the conducted studies have shown that information therapy leads to the improvement of self-care, empowerment, enhancement of community literacy, reduction in

medical costs and physician referrals, and increase in adherence to treatment in the treatment of acute and chronic, mental and emotional illnesses.<sup>13-15</sup>

The studies have shown that a high percentage of people with drug abuse do not cooperate or have poor cooperation in the drug therapy. Therefore, the role of non-drug interventions such as information therapy along with the drug interventions is increasingly emphasized.<sup>16</sup>

Addiction is a physical, mental, and psychological disorder that, due to its progressive nature, threatens all aspects of one's life, family, and society. Most importantly, it threatens the quality of life and values accepted by the whole society.<sup>17</sup> Despite extensive treatments for avoiding use of drugs, the relatively high rate of relapse and its negative consequences often occurring after quitting addiction and ending treatment is a matter of considerable concern. One of the important factors, that can help addicts during the treatment for rehabilitation and recovery of mental and physical energy after drug use disorder, is information therapy for adherence to treatment. Information therapy can be effective during treatment, and may reduce the risk of relapse.<sup>18</sup>

Indeed, addiction is a greatly important phenomenon, which leads to undesirable impacts on the society; hence, it is emphasized to treat addicted patients. With regard to the importance of adherence of the addicted people to drug use in the treatment process, and according to the fact that coping strategies effective in improving adherence to treatment are more likely to increase compatibility in stressful situations and psychological pressure, this study was conducted to evaluate the effects of information therapy on adherence to treatment among the patients in addiction treatment centers in Jiroft City, Iran.

## Methods

The present study was a quasi-experimental and a case-control one conducted on 60 patients in drug addiction treatment centers in Jiroft in 2019. The sample size was estimated based on the previous studies.<sup>19</sup> A multistage cluster sampling was used as the sampling method. The sampling was performed on 12 addiction treatment centers in Jiroft. For this purpose, Jiroft was divided into two districts including "A" and "B". One center was randomly selected from each district, and 30 eligible individuals were selected systematically

based on the alphabetical order. The 60 selected patients were randomly divided into control (n = 30) and experimental group (n = 30).

Based on the research inclusion criteria, methadone-treated individuals who had undergone treatment for three months, were willing to participate in the study, had the required reading and writing skills for completing the questionnaires and better understanding the educational materials, had no difficulty in communication, had no known mental illness, and could attend all educational sessions, entered the study. In fact, patient's non-regular participation in training sessions might lead to sample loss and consequently, false results. The research exclusion criteria included immigration, death, and inability to participate in the study.

The data were collected using a demographic questionnaire and 8-item Morisky Medication Adherence Scale.

The first section of the questionnaire was on demographic information, and the second section adopted Morisky Medication Adherence Scale. The demographic questionnaire consisted of two parts: demographic information and addiction-related information. The demographic information section was composed of questions about patients' demographic characteristics including age, gender, educational level, occupation, history of drug addiction, number of family members, number of years of addiction, socializing with addicted friends, and marital status. To determine the validity of the demographic information questionnaire, content validity was used. To do this, the initial questionnaire was distributed to 10 professors of Kerman University of Medical Sciences, Kerman, Iran, and their recommendations for modifications were collected. Finally, according to their opinions and with the approval of the supervisor, the data collection tool was validated.

The second section of the questionnaire was 8-item Morisky Medication Adherence Scale. The first seven questions were dichotomous with yes and no options, scored zero points for yes and one point for no responses. For the eighth question, a 5-point Likert scale (1 = never, 75% = rarely, 5% = sometimes, 25% = often, 0 = always) was utilized. In this questionnaire, for the fifth dichotomous question, scoring was reversed so that the yes response was scored 1 point and no

response was scored zero points. The maximum score that can be obtained in this questionnaire is eight; scores less than five suggest low adherence, from five to seven show moderate adherence, and from six to eight denote high adherence.

Rus-Makovec et al. translated Morisky Medication Adherence Scale into Persian, and confirmed its validity and reliability.<sup>20</sup> To obtain scientific validity in the present study, content validity was used. Thus, taking the content of items in Iranian studies into account, the translated items of the original questionnaire were given to ten faculty members of Kerman University of Medical Sciences who had information or work experience in this field. After implementing the recommended changes based on their opinions, the content of the questionnaire was evaluated and approved. The reliability of the questions was calculated by a test-retest method. The questionnaires were completed by 16 addicted patients two times with an interval of 10 days, and the correlation coefficient was 87%.

The method of data collection is as follows:

**Pre-intervention stage:** After obtaining the ethical approval from the Research Ethics Committee of Kerman University of Medical Sciences (with the ethics code of IR.KMU.REC.1398.474), and receiving a written letter from that university to submit it to officials of Drug Addiction Centers in Jiroft, the researcher referred to these centers and submitted the letter of introduction. Later on, the goals and the overall design of the interventional program as well as the benefits of its implementation were explained, and participants' consent to implement the information therapy program was obtained. It was agreed that the results of the research would be provided to the relevant officials. It should be noted that the educational program was formulated using the educational booklet of the Educational Resources Provider Committee, the National Center for Addiction Studies, and review of the related articles.

After applying the modifications recommended by the professors and obtaining their approval, it was validated. Moreover, the reliability and validity of data collection tools including the demographic questionnaire and the 8-item Morisky Medication Adherence Scale were confirmed. Subsequently, the researcher decided to perform the intervention, and the samples were

selected based on the inclusion and exclusion criteria. Then, the research goals and the way of cooperation in the study were explained for the participants. Thereafter, the informed consent was obtained. The participants were randomly divided into experimental and control groups. Before the intervention, the patients in both groups were asked to complete the demographic questionnaire, and the Morisky Medication Adherence Scale.

**Intervention stage:** At this stage, the researcher and a clinical psychologist (instructor of the educational sessions) went to the Addiction Treatment Centers in Jiroft. To provide an appropriate educational environment, the information therapy sessions were held at drug addiction centers for patients' convenience; so that patients could focus on the educational points well. The educational program was implemented for the experimental group as a group work in which the content and concepts were transferred in simple and clear words, the key points were emphasized and repeated at the end, and mostly short sentences were used. This educational program was provided in six one-hour sessions per week, according to the patients' degree of learning. The content was taught using a whiteboard and PowerPoint presentation. The treatment sessions included assessing the addiction disease, solving problems by medical treatment, evaluating the time needed to treat drug addicted people, discovering conflicting views on the treatment, and discussing different views, accuracy of the treatment, and use of treatment in future as a permanent solution to solve the problem. It is worth mentioning that the experimental and control groups were matched to control the confounding factors.

**Post-intervention stage:** Eight weeks after the intervention, the participants were asked to re-complete the questionnaires. The control group received only routine trainings, and did not receive any training on information therapy; nonetheless, this group completed all questionnaires. After extracting the data and analyzing them, the mean scores of adherence to treatment before and after the training program were evaluated, and the effect of implementing the training program was assessed. The descriptive and inferential statistics were analyzed using SPSS software (version 24, IBM Corporation, Armonk, NY).

**Table 1.** Chi-square test results for homogeneity of sample distribution in control and experimental groups

Demographic characteristics of the statistical sample		Experimental group n (%)	Control group n (%)	Degree of freedom	P
Marital status	Single	7 (23)	6 (20)	3	0.626
	Married	15 (50)	14 (47)		
	Divorced	6 (20)	7 (23)		
	Deceased	2 (7)	3 (10)		
Income level (million)	Less than 1	13 (43)	12 (40)	3	0.430
	1 to 2	9 (30)	8 (27)		
	3 to 4	5 (17)	6 (20)		
	Over 4	3 (10)	4 (13)		
Educational level	Illiterate	6 (20)	5 (17)	4	0.230
	Elementary school	7 (23)	5 (17)		
	Middle school diploma	4 (14)	4 (13)		
	High school diploma	7 (23)	9 (30)		
	University degree	6 (20)	7 (23)		
Number of family members	1	5 (17)	6 (20)	3	0.150
	2	11 (37)	9 (30)		
	3-5	10 (33)	9 (30)		
Age (year)	More than 5	4 (13)	6 (20)	3	0.540
	Less than 25	6 (20)	7 (23)		
	25-35	8 (27)	10 (34)		
	36-45	10 (33)	9 (30)		
	Over 45	6 (20)	4 (13)		

### Results

In this study, 60 participants took part, and there was no loss of samples. The mean age of the participants in the experimental and control groups was  $28.00 \pm 10.65$  and  $30.00 \pm 11.12$  years, respectively.

As depicted in table 1, the results of the chi-square test to examine homogenous distribution of samples in the experimental and control groups indicated that the demographic characteristics of the marital status ( $P = 0.620$ ), monthly income level ( $P = 0.430$ ), educational level ( $P = 0.230$ ), number of family members ( $P = 0.150$ ) and age

( $P = 0.540$ ) were homogeneous in two groups of the study.

The analysis of data presented in table 2, before revealed that 14 participants in the experimental group and 19 in the control group had low adherence level. Totally, 33 participants (55%) showed a low level of adherence. Furthermore, 11 participants in the experimental group and 7 in the control group had moderate adherence level. In total, 18 participants (30%) showed a moderate level of significance. In addition, 5 participants in the experimental group and 4 in the control group had a high adherence level. Totally, 9 participants (15%) indicated high adherence.

**Table 2.** Comparison of the results of treatment adherence levels in addicted patients (control and experimental groups) referred to health centers before and after the information therapy

Results of treatment	Group		Total	Percentage
	Control	Experimental		
Treatment adherence levels before information therapy				
Low	19	14	33	55
Moderate	7	11	18	30
High	4	5	9	15
Total	30	30	60	100
Treatment adherence levels after information therapy				
Low	16	5	21	35
Moderate	8	10	18	30
High	6	15	21	35

The chi-square value obtained by comparing the frequencies of the two groups in the three variables of adherence level was 1.75, which was not statistically significant ( $P = 0.410$ ). Therefore, the two groups in the pretest did not differ significantly concerning the level of adherence.

According to table 2, after there were 5 participants in the experimental group and 16 in the control group with a low level of adherence. Totally, 21 participants (35%) demonstrated a low level of adherence. Furthermore, 10 participants in the experimental group and 8 in the control group had moderate adherence level. In total, 18 participants (30%) showed a moderate level of significance. In addition, 15 participants in the experimental group and 6 in the control group had a high adherence level. Totally, 21 participants (35%) indicated high adherence.

The chi-square value obtained by comparing the frequencies of the experimental and control groups in three variables of adherence level after the information therapy was 9.84, which was statistically significant ( $P = 0.007$ ). The experimental and control groups were significantly different after the information therapy. Thus, the information therapy had a significant and positive effect in the experimental group.

## Discussion

The results of this study showed that the level of adherence to treatment increased significantly in the patients of addiction treatment centers in Jiroft after receiving the information therapy. This suggested that the trainings in therapeutic sessions have enabled the patients to adhere to the drug at these addiction treatment centers, since there was a significant difference between the experimental and control groups. Therefore, it was confirmed that the information therapy had an influence on adherence to treatment in the patients in addiction treatment centers.

The results of this study were in line with those of the studies conducted by Rafiee Vardanjani and Shafiei,<sup>21</sup> Borji et al.,<sup>22</sup> and Gholamali et al.<sup>23</sup> A number of studies, such as those conducted by Abbasnazari et al.<sup>24</sup> and Vanhaecke et al.<sup>25</sup> have proven the positive impact of training the patients on enhancing the patients' drug adherence by providing training pamphlets. However, the results of the present study were inconsistent with those of the study

carried out by Crilly and Esmail,<sup>26</sup> which showed training and informing using pamphlets and booklets had a negligible and non-significant effect on drug adherence. The inconsistency in the results might be due to the differences in the statistical population or differences in the conditions of these two studies, such as the culture of the two countries, the type of used questionnaires, the duration of follow-up, and the characteristics of the patients.

Our results showed that most of the studied patients had a low adherence. In a study conducted by Rafiee Vardanjani and Shafiei,<sup>21</sup> most patients had a moderate drug adherence but the rate of good adherence in their study was higher than that of the present study. Poor spiritual well-being may have caused a non-adherence to the proper treatment by leaving an impact on the life expectancy and the quality of life of the patients. In fact, hope is defined as an inner force that can enrich life and enable patients to have a better vision of the current situation. Lack of hope and purpose in life lowers the quality of life in patients and creates desperate beliefs.

The findings of this study also showed that lack of knowledge of the drug side effects as well as forgetting to use drugs among the control and educational intervention groups were the most important reasons for drug non-adherence. Many reasons have been reported for drug adherence such as forgetfulness, lack of motivation, high drug prices, inadequate health literacy, inadequate drug regimen, complex drug regimen, lack of trust in physician and his diagnosis, insignificance of drug use, and side effects of drugs.<sup>27</sup> In a systematic study conducted by Browne and Merighi,<sup>28</sup> it was revealed that the most important factor affecting adherence to treatment was forgetfulness in drug intake. In a study conducted by Zolfaghari et al.,<sup>29</sup> the most important reasons for non-adherence to the drug regimen were respectively forgetting to take drugs, not taking drugs as prescribed and not believing in the effect of drugs prescribed by a physician. Zare et al.<sup>30</sup> also pointed out that the most common reasons for non-adherence were forgetfulness or lack of taking drugs while travelling.

In explaining the results of the present study, it can be stated that adherence refers to a patient's compliance to guidelines that involve timely and

correct use of drugs prescribed by a physician. Although the diagnosis of the diseases has been facilitated in light of increasing advances in the science and technology, the key to the success of drug therapy is the proper adherence of the patients to the drug regimen. In general, the use of information therapy in patients referred to addiction treatment clinics seems to be effective in increasing the adherence to drug use, and it can be expected that the treatment of these diseases will be more successful.

However, poor drug adherence can lead to progression of complications and diseases, reduction in performance, decrease in quality of life, rise in treatment costs, increase in use of expensive and specialized medical resources, unnecessary drug changes, and increase in length of hospitalization. Several interventions have been implemented to improve the adherence. However, these types of programs are very complex, have low effectiveness, and are expensive and time-consuming.<sup>31</sup> Moreover, it is difficult to say which part of this type of interventions was more effective than the other parts. For this reason, simple interventions such as reminding patients are suggested.

Some of the factors that facilitate drug adherence include reducing inappropriate prescriptions, decreasing complex drug prescriptions, supporting health care team members, improving the quality of patient-physician relationship, building self-confidence, helping patients to be more active, and providing guidelines for new prescriptions.<sup>32</sup> Furthermore, increasing patients' satisfaction with treatment team, supporting patients, giving objective warnings to patients, giving feedback on laboratory findings to patients, increasing patients' satisfaction with treatment, and making the patients' families involved in the treatment process<sup>33</sup> can be considered as other factors facilitating drug adherence.

The drug-dependent addicts must overcome the constant compulsion to use drugs. In addition, they must overcome many psychological and physical problems that lead to drug use and the lifestyle related to it. With increasing the dependence, the patient's ability to cope with these problems will decrease.<sup>34</sup>

To treat the addiction, patients should undergo a series of physical, psychological and

social changes. Due to the nature of this disease, patients often do not adhere to the physician's advice on the dose of the drugs taken, and long-term delivery of drugs makes them reduce or increase the dose of the drugs, which might cause intoxication and exacerbated complications.

## Conclusion

It can be concluded that accurate information on the drug adherence is not available for patients in the drug addiction treatment centers. Therefore, the status of the drug adherence in this study can provide statistics and information that can be used in various interventions.

The strength of this study was that it was dedicated to investigate the adherence to treatment in methadone-treated addicts, which has less been taken into consideration in previous studies. One of the implications of this study is that patients should be provided with sufficient information about the benefits of the drug when receiving it. Patients with a high level of knowledge of their medication will not stop their medication without consulting with their physician. Information therapy can prevent the tendency to reuse the drug and its unpleasant consequences.

These results indicated an improvement in the patient's condition as well as making them immune to the side effects of the drug. Increasing patients' knowledge of their disease can provide a basis for self-care. It seems to be the first step in preventing drug use and treating the disease. The findings also provide strategies for health planners and practitioners to increase patients' knowledge of methadone use and adherence to treatment.

## Conflict of Interests

The authors have no conflict of interest.

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## Authors' Contribution

MA designed of the study, collected data and

drafted the manuscript. MP has searched the literature and helped design the study. NS has critically reviewed the manuscript, designed the

study, and helped in manuscript preparation and the analysis reported in this manuscript.

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## تأثیر اطلاع‌درمانی بر پابندی به درمان در میان بیماران مراجعه‌کننده به مراکز ترک اعتیاد

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### مقاله پژوهشی

### چکیده

**مقدمه:** پابندی به درمان، موفقیت‌آمیز بودن درمان را در افراد معتاد پیش‌بینی می‌نماید و از عوارض منفی و شدت اعتیاد می‌کاهد. پژوهش حاضر با هدف تأثیر اطلاع‌درمانی بر پابندی به درمان، در میان مراجعه‌کنندگان به مراکز ترک اعتیاد طراحی و اجرا شد.

**روش‌ها:** این مطالعه مداخله‌ای، طی دو مرحله قبل و پس از آموزش، بر روی ۶۰ مددجوی معتاد شهر جیرفت که به صورت تصادفی به دو گروه آزمون و شاهد تقسیم شدند، انجام گرفت. ابزار جمع‌آوری اطلاعات، پرسش‌نامه‌ای دو بخشی شامل پرسش‌نامه ۸ سؤالی استاندارد پابندی تبعیت دارویی Morisky و پرسش‌نامه جمعیت‌شناختی بود. قبل از آموزش، پرسش‌نامه در اختیار اعضای هر دو گروه قرار گرفت و تکمیل گردید. سپس به گروه آزمون شش جلسه آموزش داده شد. دو ماه پس از مداخله آموزشی، هر دو گروه آزمون و شاهد پرسش‌نامه را تکمیل نمودند. داده‌های به دست آمده با استفاده از آمار توصیفی و استنباطی در نرم‌افزار SPSS مورد تجزیه و تحلیل قرار گرفت.

**یافته‌ها:** قبل از اطلاع‌درمانی، میزان پابندی به دارو در هر دو گروه آزمون و شاهد پایین بود، اما پس از اطلاع‌درمانی نتایج آزمون  $\chi^2$  برای مقایسه فراوانی‌های گروه آزمون و شاهد در سه طبقه متغیر سطح پابندی، به لحاظ آماری معنی‌دار بود ( $P = 0/007$ ). بنابراین، گروه‌های آزمون و شاهد پس از اطلاع‌درمانی تفاوت معنی‌داری را با یکدیگر نشان دادند؛ بدین معنی که اطلاع‌درمانی در گروه آزمون تأثیر معنی‌دار و مثبتی داشت.

**نتیجه‌گیری:** مداخلات اطلاع‌درمانی تأثیر مثبتی بر تبعیت دارودرمانی میان بیماران دارد. بنابراین، استفاده از اطلاع‌درمانی در مورد مصرف به‌موقع و صحیح دارو و اهمیت آن در درمان معتادان در حال ترک، می‌تواند باعث بهبود سطح پابندی آنان به دارو شود.

**واژگان کلیدی:** پابندی به درمان، اطلاع‌درمانی، همکاری بیمار، مراکز درمان سوء مصرف مواد

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