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RESEARCH ARTICLE

Development a Management Model for Methadone Maintenance Treatment Clinics in Iran

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ABSTRACT

Background: Substance use disorder is a chronic relapsing condition which requires longterm treatment. Client adherence is vital for effective methadone maintenance treatment (MMT). The objective of the present study was to identify effective factors and design an optimal management model for MMT clinics.

Methods: A cross sectional, analytical and applied research was conducted involving 15 experts and 273 physicians.. In the qualitative section, the experts were interviewed using the purposive sampling method until the saturation of opinions. In the quantitative section, the physicians (experienced in addiction treatment) were included in the study. In the quantitative part, the instrument's reliability was evaluated by Cronbach's alpha index, and the validity of the instrument structure was evaluated by confirmatory factor analysis. Data were analyzed by SPSS sand Lisrel software.

Results: According to the content validity confirmation, the reliability of the tool by Cronbach's alpha index shows values greater than 0.7, which indicates the reliability and repeatability of the tool. Also, the root mean square error of approximation (RMSEA) indices in all models show values less than 0.06 and chi-square index on the degree of freedom in all models less than 3, which shows the proper fit of the model and confirmation of the validity of the tool structure in the whole conceptual model.

Conclusions: The effective factors in the management of MMT clinics include organizing, planning, controlling, guiding, leading, and managing treatment, which these dimensions can be an excellent basis for evaluating senior managers.

KEYWORDS:
Substance-Related Disorders, Organization and Administration, Health, Iran

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INTRODUCTION

Drug addiction is recognized as one of the main health, medical and social problems, leading to severe physical, psychological, and social damages [1-4]. The devastating impact of these substances has become a significant threat to societies and caused a lot of social and economic costs, increasing crime and death in the world [5-7].

According to official statistics, about 10 million people in the country are annually and directly involved with substance use disorders each year in Iran [8]. The most common drugs used among these people are opium, glass, and heroin [9-11]. Lack of social marketing, the weakness of action plan, limited access, the lack of a national system of prevention, the lack of

monitoring and evaluation, and finally, the weakness of intercultural cooperation are the most critical barriers to the implementation of primary prevention policies of addiction [12-14].

Since 2007 there have been about 700 Methadone Maintenance Treatment (MMT) clinics in Iran, whose number reached about 7,000 centers by 2018, with about 900,000 people covered by medical treatment15. Billion dollars are spent every year on the state budget for the treatment of opioid-dependent disorders. Apart from the costs that these disorders impose on the world and Iran in the fields of medicine, social, legal, and public health [16]. Addiction treatment has been shown to reduce social and health-related costs. Treatment is also less expensive than alternative methods such as imprisonment for addicts [17].

A recent systematic review of 67 studies found that while retention rates in MMT decrease over time, with the median retention rate in MMT declining from 67% at six months to 50% at two years, most dropouts occur early in treatment [18]. Methadone dose was one of the most commonly studied risk factors, and despite considerable variability in assessment, higher methadone doses were consistently observed to be associated with reduced dropout. In contrast, age, specifically younger age, was associated with increased dropout across studies [18].

Persistent cycling in-and-out of clients in MMT programmes is common. Insufficient dosage and higher proportion of positive urine samples in the first treatment episode are the key determinants for subsequent client drop-out and re-enrolment [19]. Another systematic review shwed that the treatment retention, drop-out and associated factors; however, due to differences in the types of treatment, treatment setting and patients' characteristics, different rates of drop-out, from 0.4% to 90%, have been reported [20].

A study in Iran showed that the drop-out rate during the first 3 months was seen in 62.0% of opioid-dependents and 82.4% of stimulant-dependents [21].

Lack of efficient management and the use of other rehabilitation services in this regard, the need to design an optimal management model increases a hundred times [20]. Spending every dollar on addiction treatment programs will result in a return of four to seven dollars by reducing drug-related offenses, high court costs, and theft. When we add health and care costs, this figure rises from one to twelve dollars. In addition to the cost-effectiveness of treatment at the community level, it reduces interpersonal conflict, increases more productivity in the workplace, and leads to less substance-related events, including poisoning and death [22].

The difference between this tudy and the previous studes was this study explore the effficiency of the management and design the management model of MMT clinics. The objective of this study was to identify effective factors and design an optimal management model for MMT clinics.

METHODOLOGY

Research design and procedure

The present study is cross sectional, analytical and applied, which was performed in MMT clinics in Iran in December 1, 2019 to November 30, 2020.

Research subjects

The target population in the qualitative part of the study includes all experts and academic experts in addiction, who were interviewed by 15 experts using targeted sampling and snowball until saturation of opinions. The target population in the quantitative part of the study included all physicians in charge of technical addiction clinics throughout the country. Cochran's formula (Morgan-Krejcie table) was used to select the sample size [23]. Considering that the target population consisted of 748 members, based on the Morgan-Krejcie table and taking into account 10% of the sample loss, the final sample size was 281 people. Finally, 273 samples whose questionnaire information was complete were obtained by the sampling method.

Measurements

In this study, a researcher-made tool was employed. To prepare this tool, after reviewing texts including books and articles based on the topic, interviewing experts was used until saturation of opinions to extract a conceptual model appropriate to the target topic. The experts' opinions were coded and classified after three round trips and their completion and removal of incomplete information. Based on the final classification, variables appropriate to each topic were determined. Finally, a conceptual model was created based on (Figure 1). The content validity index (CVI) and content validity ratio (CVR) indices were used to determine the content validity of the researcher-made tool. The minimum acceptable value of the CVR in Lavashe method based on the number of expert (in this study was 15 experts) 0.49 [24]. The CVR value in all dimensions and components was exceeded. Meanwhile, the CVI value of the instrument was 0.85, which is 0.79 higher than the minimum acceptable value of this index [25, 26]. Finally, a questionnaire called the management model of MMT clinics was finalized with 102 questions, including 15 components in 5 dimensions; Questionnaire questions were scored between 1 and 5, with 1 indicating minimum and 5 indicating maximum acceptance of the item (Table 1).

Data analysis

To determine the structure's validity and reliability researcher-made tool was distributed in the target community as a questionnaire according to the determined sample size in a

quantitative part. Confirmatory factor analysis was used to determine the construct validity, and Cronbach's alpha index was used to determine the instrument's reliability. SPSS software version 21 was used to determine descriptive statistics, and Cronbach's alpha index and Lisrel software version 8 was used to determine the construct validity using confirmatory factor analysis. The significance level of statistical tests in this study was 0.05.

Ethical clearance

Current study was approved by Department of Health Services Management, Science and Research Branch, Islamic Azad University, Tehran, Iran with code of 10148419851544113991623124 30.

RESULTS

In the quantitative part of this study, 273 completed questionnaires were finally included in the study, of which 83.15% were male, and 16.85 were female. As for participants, 67.77% had more than 15 years of experience, and 32.23% had less than 15 years of experience.

Cronbach's alpha index was used to determine the reliability of the questionnaire. The results show that all components and dimensions have Cronbach's alpha greater than 0.7 (Table 2). Therefore, the reliability of the questionnaire can be confirmed.

The confirmatory factor analysis method was used to determine the validity of the structure. To calculate, and confirm the conceptual model, each of the four dimensions was evaluated separately, and then the final model was. The results of each model are reported in (Table 3). The goodness index of chi-square fit on the degree of freedom shows that all models have values less than 3 and RMSEA index in all models has values less than 0.8 and meanwhile, GFI and AGFI, NFI, NNFI, and IFI indices have values greater than 0 9. The results of all these indicators together show a complete fit of the model. The total model fit diagram is shown in (Figure 2). According to the obtained results, the construct validity of the researcher-made tool in this research can be confirmed.

DISCUSSION

First dercribe the main finding of your study, then compared aith the reults of previous studies. Whatwas the results, consistent or inconclusive

In Iran, the low success rate of MMT imposes high costs on the government and society for the treatment of drug-related illnesses and drug-related crimes, which may indicate that the current clinic management system and treatment process are inefficient [16]. Furthermore, it does not have the desired effect. Consequently, the low success rate of MMT in Iran is associated with a high rate of criminal activity and the resulting infectious diseases. In this regard, the need to design an optimal management system increases a hundredfold. The high success rate of MMT can reimburse high financial costs to the government. An integrated, coherent, and orderly management system for addiction clinics can address social, economic, and cultural issues for planners and policymakers [27, 28].

Provision of comprehensive services using MMT clinics needs require expanding and improving. The quality of life of patients receiving treatment in the existing MMT clinics improved significantly [29, 30]. Xiao et al. Stated that in their study, methadone maintenance treatment helps improve the quality of life of outpatients in MMT clinics [31].

The two components of organizing human capital and organizing structures and processes form the dimension of organizing. Managers of centers should be able to review and evaluate the status of welfare and motivational programs of their employees, following each employee, to use specific welfare programs to make the most of the power of their employees. Medical organizations and MMT clinics should be designed in terms of structures and processes due to the special services they provide at the community level. In addition, meeting the needs of their clients and having discipline in activities, they also have the feature of flexibility. Due to the special clients, these organizations must have the utmost flexibility to help their clients effectively. People who refer to MMT clinics due to the special disease they are struggling with need a calm environment away from seizures and quarrels in order to be able to fight the addiction giant with peace of mind and regain their health. Suppose such organizations have a rigid and inflexible structure and their employees cannot communicate properly with clients. In that case, they will not be able to meet the needs and expectations of their clients, which will ultimately preclude the patients from returning to these centers.

The planning dimension was formed by financial and economic resource management, physical and public resource management, and information and knowledge resources management. Since MMT clinics receive a part of their required budget from their clients, the managers of these centers should develop this ability in themselves. Moreover, they can further promote their abilities and facilities in improving the patients' recovery referred to the center to attract more clients and, as a result, earn more revenue from new customers. On the other hand, cost management is one of the centers' most essential capabilities. Therefore, the manager must be able to balance his expenses and income.

The two components of quality management and process monitoring factors formed the control dimension. In terms of quality management, the centers must have the necessary ability to develop standards and treatment guidelines to be offered to clients. Therefore, increasing the ability of the center and the

organization to provide new and up-to-date services, quality health services are provided to your clients. Since addiction clinics and centers are among the most important medical centers for developing awareness and achieving a healthy society, the managers of these centers are expected to benefit from the maximum participation of stakeholders in various organizational processes by developing the right programs. There ultimately leads to a commitment among all participants to achieve the planning and decision-making process goals. Furthermore, controlling the output of the centers and comparing the outputs for control can help improve the quality of the work performed at the centers. Based on a similar study, it can be said that NAJA interaction with MMT clinics effectively prevents addicts from returning to addiction.

In leading, especially in medical organizations and MMT clinics, we can mention five important and affective components of research leadership and health technology: crisis management and passive defense; accountability, satisfaction and loyalty; communication with the client and public relations; and services development. In the field of research leadership and health technology, the manager of the organization has to evaluate the ability of the organization to conduct various studies in the field of health as well as drawing the attention of managers to the discussion of scientific and knowledge-based management and, if necessary, make necessary corrections. On the other hand, the organization should have the ability to avoid duplication of experiences and results obtained from the research of other centers in the field of health and other related fields and avoid incurring additional costs in this field.

The three components of the workforce, cost, and physical space form the dimension of treatment management. Thus, specialized medical staff with standard conditions reduced costs paid by patients, and a suitable physical space to perform standard activities are the main treatment conditions. In this regard, it can be said that in the field of human resources, the management of a medical and treatment complex is obliged to provide the required human resources in proportion to the number and type of patients who refer to the center and provide them with the best treatment. Moreover, help their illness faster.

In Yin et al. study, the authors stated that China has made impressive progress in MMT program. They concluded that five factor have to improve MMT program: increasing the coverage of MMT clinics; Increase access to services by increasing the number of clinic centers; Training staff to improve the quality and management of clinics; and enhancing multi-sector cooperation [32]. Also, Mahdanianfar et al. stated that reviewing and reforming policies is a way to improve the current state of management of MMT [33].

LIMITATION

Among the limitations of this study are the diversity of centers issuing licenses for addiction treatment centers and the interference of addiction treatment centers such as pharmaceutical and non-drug centers and centers under multiple supervision.

FURURE DIRECTIONS

Officials and planners of health and community health as well as trustees of the Ministry of Health and Medical Education can use the results of this study to plan and macro-policies of the health system to improve the health of individuals and prevent the occurrence of addiction in society.

CONCLUSION

According to the research findings, a suitable tool for managing and evaluating Iranian MMT clinics as part of Iran's drug harm reduction management system is presented in the form of 15 components and five dimensions of the questionnaire. The present model can be a good basis to evaluate managers so that the organization's policies and programs can be upgraded, modified, and reviewed accordingly. However, according to the study's findings, a dry and inflexible hierarchy is one of the main reasons for disrupting the achievement of the centers' goals. Therefore, planners and decision-makers in this area are suggested to reconsider the structure of activities and try to Give flexibility.

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CONFLICT OF INTEREST

There was no conflict of interest in this research.

CONTRIBUTORS

Conceptualization: AK and LR. Data analysis: IA. Methodology: AK and SJT. Supervision: AK, LR, and SJT. Writing the original draft: IA. Critical review and editing: AK, LR, and SJT. All authors approved the final manuscript.

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Table 1: Dimensions, components, and indicators obtained during open and axial coding [26]

Dimensions	Components	Number of items
Organizing	Organizing human capital	19
	Organizing structures and processes	8
Planning	Management of financial and economic resources	8
	Physical and public resource management	4
	Management of information and knowledge resources	7
Controlling	Quality management	7
	Process monitoring	7
Leadership	Health research and technology leadership	8
	Crisis Management	4
	Factors of accountability, satisfaction, and loyalty	7
	Communication with the client and public relations	9
	Service development	4
Treatment Management	Workforce	4
	Costs	3
	Physical space	3

Table 2: Results of tool reliability by components and dimensions

Dimensions	Number of Items	Cronbach's Alpha Index	Components	Number of Items	Cronbach's Alpha Index
Organizing	27	0.87	Organizing Human Capitals	19	0.86
			Organizing Structures and Processes	8	0.88
Planning	19	0.88	Financial and Economic Resource Management	8	0.89
			Physical and Public Resource Management	4	0.87
			Information and Knowledge Resources Management	7	0.85
Controlling	14	0.91	Quality Management	7	0.86
			Process Monitoring	7	0.90
Leading	28	0.87	Research Leadership and Health Technology	8	0.92
			Crisis Management and Passive Defense	4	0.89
			Accountability, Satisfaction, and Loyalty	7	0.92
			Communication with the Client and Public Relations	9	0.87
			Services Development	4	0.86
Treatment	10	0.84	Workforce	4	0.79
			Costs	3	0.81
			Physical Space	3	0.83

Table 3: Summary of model fit results

Fit Indicators	Dimensions					Model
	Organizing	Planning	Controlling	Leading	Treatment	
Chi-Sq./df	1.65	2.65	1.88	1.24	1.24	1.63
GFI	0.93	0.91	0.94	0.94	0.94	0.94
AGFI	0.91	0.93	0.94	0.94	0.94	0.93
RMSEA	0.069	0.067	0.074	0.031	0.031	0.034
CFI	0.95	0.92	0.93	0.98	0.98	0.93
NFI	0.95	0.92	0.91	0.95	0.95	0.94
NNFI	0.95	0.94	0.92	0.97	0.97	0.93
IFI	0.97	0.95	0.94	0.98	0.98	0.95

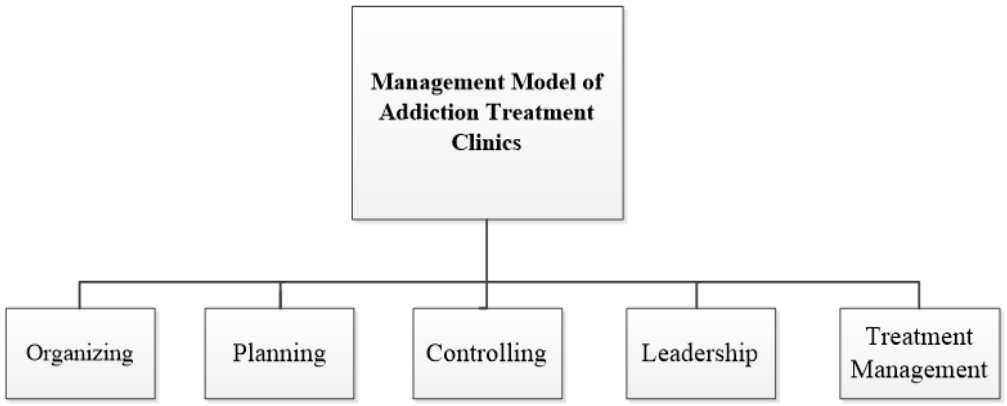

Fig.1: The conceptual model derived from interviewing and reviewing texts

Fig.2: Standardized coefficients of the model