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The effect of an education program based on the family-centered empowerment model on addiction severity among methamphetamine users

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ABSTRACT

Introduction: In the process of treatment and prevention of relapsing to drug use, it is important to pay attention to mental health and supportive training interventions based on empowerment models. The present study was conducted to investigate the impact of training intervention based on the family - centered empowerment model upon the severity of damages caused by addiction among methamphetamine (MA) users.

Material and methods: This study was a randomized trial. Subjects were divided into the intervention (95 individuals) and control (95 individuals) groups, randomly. The data collection tools included a demographics checklist and the *Addiction Severity Index* (ASI) standard questionnaire which were completed before, and three and six months after the educational intervention. The educational intervention was conducted in nine 90-minute sessions using the 5As method, group discussion and distribution of educational pamphlets. Statistical tests like the independent *and* paired *t*-test were used to analyze data.

Results: The research findings indicated that the average scores of ASI subscales including family status, mental status and use of drugs were significantly different between before and three months after the training intervention in the intervention group ($P < 0.05$). The results also showed that the average scores of ASI subscales including medical status, employment, income, family, mental status, legal status and use of drugs were significantly different before and six months after the training intervention in the intervention group ($P < 0.05$).

Conclusions: It was feasible to implement the family-centered empowerment model among MA users and it improved the severity of damages caused by drug abuse.

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1. Introduction

Methamphetamine is one of the first synthetic materials which was extracted from ephedrine by a Japanese scientist in 1893, six years after the discovery of amphetamine (Panenka et al., 2013).

The first medical uses of amphetamine were in 1932 when it was used for bronchial dilation in asthmatic patients. Later it was also used against narcolepsy, to reduce hyperactivity, suppress appetite, and keep people awake for extended periods of time (Julien, 2013). MA was widely used to increase performance and later abused during world war II by Japanese, German and American soldiers (Anglin, Burke, Perrochet, Stamper, & Dawud-Noursi, 2000). In the 1960s, amphetamine was used to treat depression and obesity in the US (Rasmussen, 2008).

According to the latest statistics published by United Nations Office on Drugs and Crime (UNODC) in 2010, MA has been increasingly used in the world since five years ago, and Iran is the fifth user in the world after Mexico, USA, China, and Thailand (UNODC, 2010). Generally, no medical treatment has been confirmed in particular for MA users and dependencies caused by it. Medicines like antidepressants, agonists and dopamine antagonists were evaluated in clinical studies in order to manage the symptoms in MA abusers (Herman, Elkashef, & Vocci, 2005). A review about medical treatments for methamphetamine dependency, reported that medications such as dopamine partial agonists, GABAergic agents and serotonergic agents do not have promising effects (Karila et al., 2010). However, three randomized controlled double-blinded clinical trials, showed that modafinil, bupropion, and naltrexone have positive effects in decreasing amphetamine or MA dependency (Elkashef et al., 2008; Jayaram-Lindström, Hammarberg, Beck, & Franck, 2008; Shearer et al., 2009). Although many of these medical treatments were proposed to cure MA abuse, there is still debate about the best treatment. On the other hand, too much attention has been paid to the medical interventions for MA users; and mental health and supportive interventions, which are associated with quality of life and lifestyle, have not been dealt well enough (Newton, De La Garza, Kalechstein, Tziortzis, & Jacobsen, 2009). Many studies do not consider the impact of treatment on quality of life at all (Gonzales et al., 2009), although clinical and behavioral research indicates that MA-dependent individuals may be vulnerable to poor quality of life (Ciketic et al., 2013).

Some of the nonmedical treatments which are recommended for MA users include behavior therapy, psychosocial interventions, hospitalization in rehabilitation centers, and stepwise psychological programs (Mehrjerdi, 2013). Cognitive behavioral therapy and Contingency management therapy.

Cognitive behavioral therapy (CBT) is used in the Matrix Model. This model employs CBT principles in individual and group settings, family education, motivational interviewing, and behavioral therapy and has been proven effective in reducing MA (Rawson et al., 2004; Rawson et al., 2006). Contingency management (CM) therapy is used for the treatment of stimulant abuse as well and uses the principles of reinforcement in order to demonstrate the desired behaviors. CM can be combined with medications, such as modafinil, for better results (Rawson et al., 2006). Other nonmedical interventions are empowerment models. Empowerment models have been used in taking care of chronic diseases from 2003 (Fazekas, Semlitsch, & Pieringer, 2003). Empowerment is a dynamic, positive (Mok, Martinson, & Wong, 2004), interactional and social phenomenon (Arvidsson et al., 2006) that has developed in relating to others (Gibson, 1995) and can improve quality of life among patients with chronic diseases. It can also increase the sense of responsibility, satisfaction and interaction with healthcare employees (Roberts, 1999), and can lead to better treatment responses and better insights into disease (Anderson & Funnell, 2005). The family-centered empowerment model which has been used in this study, is an Iranian model which its main aim is to empower the family (the patient and other family members) in order to improve their health

(Ghasemi et al., 2014). The family-centered empowerment model has been designed with respect to the effectiveness of an individual's role and other family members' roles in three motivational, psychological (self-confidence, self-control, and self-efficacy) and self-problem characteristics (such as knowledge perception and perceived attitude and treatment) areas (Vahedian-Azimi et al., 2015). Previous studies have indicated that powerful social support offered to addicts has been considerably successful in keeping these people away from drugs and changing their attitudes; and therefore, such support can improve their mental and physical health (Webb, Hill, & Brewer, 2012). Given the increasing prevalence of MA addiction and its effects (Ekici & Ozbay, 2013; Radfar & Rawson, 2014), the current study was designed to assess the effect of an educational intervention based on the family - centered empowerment model on addiction severity among MA users.

2. Material and methods

2.1. Study population and sampling

A randomized controlled trial of an educational intervention was designed, and 190 MA users were recruited into the study. All subjects were in recovery phase and had been admitted to Tehran University of Medical Sciences clinics (TUMS Clinics located in Tehran, Iran) during a 12-month period from 2015 to 2016. Inclusion criteria were as follows: age between 20 and 64 years, having a history of drug abuse less than 10 years, being in recovery phase, being detoxified and willing to participate in the study. Drug use relapse and unwillingness to participate were the exclusion criteria. A random numbers table was used to select participants from the patient lists. Then, patients were randomly allocated into intervention and control groups.

2.2. Intervention and control group

Intervention group comprised of one group of MA users in recovery phase who received the educational program (95 subjects) and the control group included MA users in recovery phase who received no educational intervention (95 subjects).

2.3. Sample size

Odds ratio was used to calculate the required sample size. A study showed that about 50% of uneducated MA users had a low quality of life (Gonzales et al., 2009); and, its odds ratio among educated users was 2.5 times higher than uneducated ones. Considering a 95% confidence interval and 80% power, the following equations were used to calculate the sample size.

$$p1 = 0.5, p2 = \frac{p1 \times OR}{1 + (OR - 1)p1} = 0.7, P = \frac{p1 + p2}{2} = 0.6, 1 - P = 0.4$$

$$n = \frac{2(Z_{1-\alpha/2} + Z_{1-\beta})^2 \times [(P) \times (1 - P)]}{(p_1 - p_2)^2}$$

The minimum sample size for each study group was 95 persons and, thus, a total of 190 subjects were enrolled into the study. TUMS clinics are somehow evenly distributed in all north, south, west and east parts of Tehran city and can be representative of willing -to- stop, MA users in Tehran. The flow chart of this RCT for allocating participants into intervention and control groups is shown in Fig. 1.

2.4. Study Instruments

The data for this study was collected through these questionnaires:

- (1) A demographic checklist including age, gender, education status, and marital status.
- (2) The Addiction Severity Index (ASI): ASI is a standard

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