



Association of Quit Addiction Self-Efficacy, Social Support, and Perceived Stress Through the Mediation of Self-Control among Addicts Treated with Methadone

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ABSTRACT

Background: Quit addiction self-efficacy is defined as one's ability to avoid drug abuse and improve the quality of life by using different maintenance drug-based treatments. The present study aimed to investigate the association of quit addiction self-efficacy, social support, and perceived stress by using the mediator role of self-control among addicts treated with methadone.

Methods: The present descriptive-correlational study was conducted by path analysis. The target population included all the drug addicts who referred to Ahvaz methadone treatment clinics in 2019. 213 of the participants were selected as the sample of the study using convenience sampling. The instruments of the research included the Quit Addiction Self-Efficacy Questionnaire, Multidimensional Scale of Perceived Social Support, the Perceived Stress Scale, and the Self-Control Scale. The proposed model was evaluated using path analysis with AMOS software.

Results: The results showed that all the direct paths except social support path to self-control were significant ($P=0.001$). Indirect paths also became significant through the mediation of self-control with self-efficacy ($P<0.05$).

Conclusion: Considering the mediator role of self-control, a significant correlation was found between perceived stress and addicts' self-efficacy. Moreover, social support is directly associated with quit addiction self-efficacy.

1. Introduction

Addiction and dependency are part of the drug abuse stage in which withdrawal will be hard for the addicts, both mentally and physically [1]. The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) has subjected the addiction diagnosis to the individual's insistence on using drugs, alcohol, and other substances despite the related problems about abuse continuity.

Moreover, compulsive or repetitive abuse may create a tolerance for the drug use and withdrawal symptoms when reducing or quitting the addiction [2].

Relevant studies on addiction have mentioned various personal, social, and familial factors that affect the desire for drug abuse [3-5]. The tendency to drug abuse and its prevalence have led to personal, social, familial, and economic obstacles. According to a recent study conducted on addiction prevalence, 2,800,000 people use drugs



regularly, and 600.000 people use drugs as a hobby. It was found that most of them are labor forces [6]. Therefore, the tendency to drug abuse among the mentioned group of the country leads to in efficiency and disability. In this case, the economy faces serious crisis [7].

The increasing rate of addiction tendency is formed during the lifetime. Those who are prone to addiction might have different psychological risk factors. Environmental risk factors would facilitate the accessibility to drugs, while psychological risk factors would raise the possibility of addiction dependency. The environmental and psychological factors affecting the prevalence of addiction include some variables such as quit addiction self-efficacy [8], social support [9], perceived stress [10], and self-control [11].

Self-efficacy is a factor that is closely related to drug abuse and the tendency to addiction [12]. Self-efficacy refers to one's thoughts and judgments about his/her abilities to achieve a considered goal. The higher the self-efficacy rate in individuals, the lower the abuse recurrence or relapse [13]. Quit addiction self-efficacy is defined as one's ability to avoid drug abuse and improve the quality of life by using different maintenance drugs-based treatments [14]. The mentioned component plays a vital psychological role in avoiding drug abuse relapse and increases tolerance toward the pain caused by quitting drugs in addicts [15]. Addicts with low self-efficacy and resistance avoid treatment procedures [16]. The concept of social support is a critical source to control addicts' quit self-efficacy [17]. The social relationship is created to receive the support and attention of others. In fact, social support is associated with an increase in the efficacy of addicts and a reduction in their drug abuse recurrence [18]. Social support leads to improved mental-physical health. Due to high stress levels, addicts need more support compared to normal people. It helps individuals to experience themselves as a worthwhile, respected, and appreciated human being [19]. Social support mitigates the stress and pressure on individuals in two ways. Firstly, it protects individuals against mental pressure experience to improve their compatibilities. Secondly, social support networks are buffers against mental stresses. Being aware of the importance of social support for mental stress experiences, one can see the ongoing incidents less desperate and threatening followed by a higher compatibility level [20]. Social support provides higher quit addiction self-efficacy owing to the mental status of drug-dependent people [21].

Perceived stress is another variable that affects the quit addiction self-efficacy of addicts. Perceived stress refers to the individuals' appraisal of life, stressful conditions, and how they consider these conditions manageable [22]. Voisin *et al.* (2020) [23] reported that stress had a reducing effect on quit addiction self-efficacy among American-African adolescents. Gustems-Carnicer *et al.* (2019) [24] found no association between perceived stress, the tendency to addiction, and quit addiction in female university students.

Regarding addiction, perceived stress is the disability to become compatible with quitting conditions and relapse that cause a real threat to the vital mental-physical balance of the body. Severe stress or anxiety may affect the person's behavior by reducing problem-solving skills and therefore self-control becomes problematic. In addition, relapse will be increased due to low-stress tolerance caused by withdrawal [25, 26]. In a study by Moitra *et al.* (2013) it was found that perceived stress could significantly increase the likelihood of drinking alcohol, using cocaine, and the possibility of turning to other substances in methadone-maintained treatment [27].

Self-control as another factor influenced by social support and perceived stress, may affect the quit addiction self-efficacy of drugs-dependent individuals. Moreover, its rate can predict quit addiction self-efficacy. Self-control means the extent of control one can have in identifying and using their abilities to control thoughts, emotions, and behaviors despite being motivated by the desired action [28]. Accordingly, the person can resist temptation and motivation to do a destructive behavior in an attempt to arousal inhibition [29]. Hajihassani *et al.* (2012) showed that individuals with higher assertiveness and self-control are less at risk of addiction potential [30]. Yang *et al.* (2019) argued that self-control could enhance quit addiction self-efficacy in patients [31]. Karatay and Ba (2019) reported that cigarette student smokers who had low quit self-efficacy show tendency for other substances [32]. They also had lower self-control. In other words, the higher the self-control, the lower the addiction potential [33].

According to what was stated, the main research question is whether there is a relationship between quit addiction self-efficacy, social support, and perceived stress by using mediator role of the self-control among methadone-treated addicts.

2. Materials and Methods

The current study was a descriptive-correlation performed by path analysis. The statistical population of the study consisted of 470 drug addicts who referred to Ahvaz methadone treatment clinics in 2019. 213 of them were selected as the sample of the study using convenience sampling. The sample size was determined using Morgan's sample size table ($n=210$ if $N>460$). The inclusion criteria were: being treated in one of the methadone rehabilitation clinics in Ahvaz city, besides the written informed consents to participate in the study. The exclusion criteria included failure to answer all the questions completely. Ultimately, 213 questionnaires were filled out by qualified participants. In terms of ethical considerations, the participants gave their informed consent in which information was ensured confidentiality.

2.1. Research Instruments

Demographic Survey Questions: To collect demographic information of the participants, a researcher-made demographic survey questionnaire with closed items was used. The questions of the questionnaire were prepared to collect data related to age, gender, marital status, employment, and other questions related to the nature of the research.

The Quit Addiction Self-Efficacy Questionnaire: Quit Addiction Self-Efficacy Questionnaire was developed by Bramson (1999) [34]. It included 16 items and four subscales of problem-solving skills, decision-making skills, assertiveness skills, and communication skills. The items were scored based on 7-point Likert Scale from strongly disagree [1] to strongly agree [7]. The questionnaire was validated for clients referring to rehabilitation clinics in Iran by Habibi *et al.* (2012) [35]. With regard to the reliability of the questionnaire, Cronbach's Alpha coefficient was reported 0.90 by Habibi *et al.* (2012) [35]. In the present study, Cronbach's alpha coefficient was 0.89 for the questionnaire.

Multidimensional Scale of Perceived Social Support (MSPSS): Perceived social support scale was developed by Zimet *et al.* (1988) [36]. The scale consists of 12 items and three subscales that measure perceived social support from three sources of family, friends, and significant others in life. The items have been scored on 7-point Likert Scale ranging from strongly disagree [1] to strongly agree [7]. To measure the total score, scores of items were summed up. The higher the score of the test, the higher the level of perceived social support by the person. The validity and reliability of the scale were reported at an optimal level by authors. In a study, Alipour *et al.* (2016) [37], reported a Cronbach's Alpha coefficient of 0.94 for the reliability of the questionnaire. The reliability of the scale, using Cronbach's Alpha coefficient, was reported 0.73 by Bruwer *et al.* (2008) [38]. The Cronbach's alpha coefficient was 0.87 in the present study.

The Perceived Stress Scale (PSS): To understand how individuals evaluate their experienced stress, the Perceived Stress Scale was used. It is a self-report scale consisting of 14 items which was developed by Cohen *et al.* (1983) [39]. The individuals are asked to rate their feelings during the last 10 weeks based on a five-option Likert scale from 0 (never) to 4 (always). For instance, whether they felt unable to control the important things in their lives. Items 4, 5, 6, 7, 9, and 13 are scored reversely. In Safaei and Shokri's (2015) research [40], the reliability of the questionnaire was 0.80 by using Cronbach's alpha. In the present study, Cronbach's alpha coefficient of the questionnaire was 0.86.

The Self-Control Scale: The self-control scale is a 36-item scale developed by Tangney *et al.* (2004) [41]. The scale has been scored on a 5-point Likert scale (from it does not apply to me at all: 1 to it always applies to me:5). Items 2, 3, 4, 5, 7, 9, 10, 12, and 13 have been scored reversely. The total score of each person is calculated by summing up items' scores. A

higher score implies high self-control. Tangney *et al.* (2004) [41] confirmed the validity of the scale by assessing its correlation with some scales such as academic achievement, compatibility, positive relationships, and interpersonal skills. Mousavimoghadam *et al.* (2015) [42], reported a Cronbach's Alpha coefficient of 0.85 for the reliability of the scale. The Cronbach's alpha coefficient was 0.88 in the present study.

2.2. Statistical Analysis

Data were analyzed by descriptive and inferential statistics such as mean, standard deviation, and Pearson correlation coefficient. The skewness and kurtosis were utilized to specify the data normality. To investigate multicollinearity, the tolerance and Variance Inflation Factor (VIF) were calculated. Moreover, in order to evaluate the fitness of the model, the indices including chi-square (χ^2), the ratio of chi-square to degree of freedom (χ^2/df), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Normed Fit Index (NFI), Incremental Fit Index (IFI), Tucker-Lewis index (TLI), and Root Mean Square Error of Approximation (RMSEA) were used. The path analysis was used to assess the proposed model. Additionally, SPSS version 24.0 and AMOS version 18.0 were used to analyze the data.

3. Results and Discussion

According to the results of demographic data, a total of 213 individuals participated in this study (178 males and 35 females). The demographic variables of the participants are shown in Table 1. Descriptive statistics including the mean, standard deviation of the variables are presented in Table 2.

Before analyzing the data, path analysis, missing data, normality, independence of errors, and no multicollinearity were examined to ensure that the presumptions are met. Since there was no missing data in this study, the first assumption has been observed. To determine the normality of variables, skewness and kurtosis were examined. It was shown that the absolute value of skewness for all the variables was less than 3 and the absolute value of kurtosis was less than 10; therefore, the normality assumption of variables has been observed. In order to investigate multicollinearity, the tolerance and Variance Inflation Factor (VIF) were calculated.

Table 1: Demographic variables of the participants

Demographic variables	n	%	
Age (years)	20-30	21	9.86
	30-40	62	29.11
	40-50	97	45.53
	50-60	33	15.50
Gender	Female	35	16.43
	Male	178	83.57
Marital status	Single	50	23.47
	Married	163	76.53
Employment status	Employed	159	74.65
	Unemployed	54	25.35

Table 2: Descriptive statistics of research variables (n = 213)

Statistical indicators	Mean	SD
Quit addiction self-efficacy	61.33	30.29
Social support	30.57	14.40
Perceived stress	33.61	14.21
Self-control	62.90	32.18

SD: Standard deviation

Results showed that since the tolerance was above 0.01 and VIF was below 10.0, no multicollinearity assumption of the variables was observed.

The correlation analysis of data indicated a significant positive correlation between social support and quit addiction self-efficacy ($r = 0.309$; $P < 0.01$). In other words, social support increased the self-efficacy of participants. Moreover, there was a significant negative correlation between perceived stress and quit addiction self-efficacy ($r = -0.491$; $P < 0.01$), which indicates increased self-efficacy in treatment seekers with a decline in stress. Finally, there was a significant positive correlation between self-control and quit addiction self-efficacy ($r = 0.492$; $P < 0.01$) that presents increased self-efficacy and self-control in treatment-seekers. In fact, there was a strong correlation between self-control and self-efficacy. In addition the correlation of stress, social support, and self-efficacy were ranked (Table 3). In the proposed model, the four variables of self-efficacies, as the endogenous variable (criterion), social support and perceived stress, as exogenous (independent) variables, self-control as the mediatory variable, were evaluated (Figure 1). Table 4 presents the fitting indices for the proposed and final models.

According to the fit index results of the path model that have been presented in Table 4, the root means square error of approximation (RMSEA = 0.390) indicating that the initial model requires correction. To correct the model, the insignificant relationship from social support to quit addiction self-efficacy was eliminated. Figure 2 shows the final model in which the root means square error of approximation (RMSEA= 0.069), $\chi^2/df = 1.994$, and CFI = 0.995 indicated a good model fit.

The findings in Table 5 showed that there was no significant relationship between social support and quit addiction self-efficacy ($\beta = 0.089$, $P = 0.157$). The relationship between social support and self-control was positive and significant ($\beta = 0.196$, $P = 0.001$). Furthermore, there was a negative and significant relationship between perceived stress and quit addiction self-efficacy among the clients being treated by methadone ($\beta = -0.317$, $P = 0.001$) and between perceived stress and self-control ($\beta = -0.478$, $P = 0.001$).

Table 3: Pearson correlation coefficient between variables

Variables	1	2	3	4
1- Quit addiction self-efficacy	1			
2- Social support	0.309**	1		
3- Perceived stress	-0.491**	-0.371**	1	
4- Self-control	0.492**	0.373**	-0.550**	1

** = $P < 0.01$.

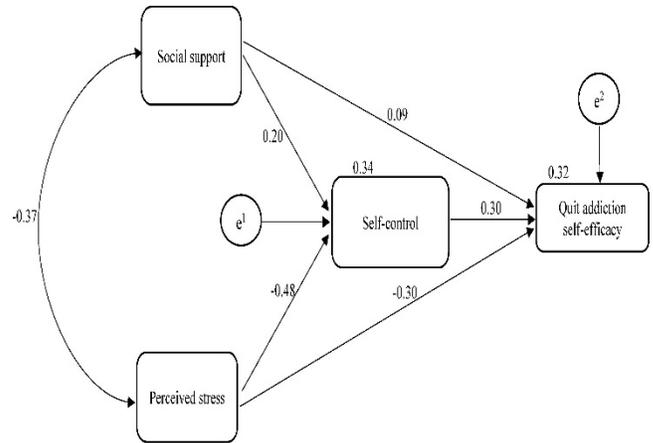


Figure 1: Initial proposed model

The relationship between self-control and quit addiction self-efficacy was also positive and significant ($\beta = 0.318$, $P = 0.001$). To determine the significance of mediating-based relations, the bootstrap method has been utilized.

The indirect path from social support to quit addiction self-efficacy through the mediating role of self-control was significant ($\beta = 0.131$, $P = 0.024$). Moreover, the indirect path from perceived stress to quit addiction self-efficacy through the mediating role of self-control was significant ($\beta = -0.323$, $P = 0.001$) (Table 6).

Results indicated that there was a direct and significant association between social support and self-control, between perceived stress and self-efficacy, and between self-control and self-efficacy. However, there was not any direct and significant correlation between social support and self-efficacy.

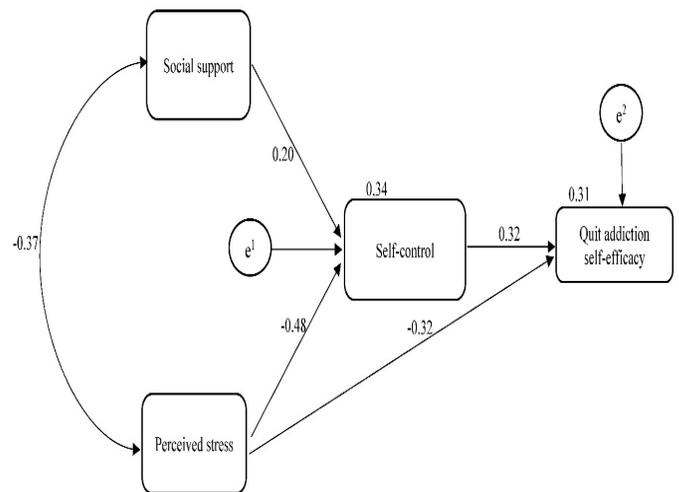


Figure 2: Final modified model

Table 4: Proposed and final model fit indicators

Fit indicators	X ²	df	(X ² /df)	GFI	IFI	TLI	CFI	NFI	RMSEA
Initial model	0.000	0	0.000	-	1.000	-	1.000	1.000	0.390
Final model	1.994	1	1.994	0.995	0.969	0.995	0.939	0.990	0.069

The findings are in consistent with the findings of studies carried out by Finlay *et al.* (2018) [17], Phua (2019) [21], Finlay *et al.* (2018) [17], and Phua (2019) [21] who have examined the association between social support and quit addiction self-efficacy by using correlation coefficient and regression tests. The results indicated a significant relationship between the mentioned variables. However, the extant study used path analysis and did not found any direct association between social support and quit addiction self-efficacy.

Results showed an indirect and significant association between social support and self-efficacy through the mediation of self-control. In Other words, social support could directly affect the quit addiction self-efficacy through self-control. It can be explained that social support may affect the self-control and self-efficacy of the individual by improving some psychological constructs such as self-esteem, resilience, and emotion control. Karatay and Ba (2019) [32] believe that social support can positively affect the quit addiction self-efficacy by increasing self-control in addicts [32]. Yang *et al.* (2019) indicated that quit addiction

self-efficacy could be improved by increasing self-control [31].

Findings proved that there was an indirect and significant association between perceived stress and self-efficacy through the mediation of self-control. Stressful conditions besides weak coping skills might cause higher addiction risk through impulsive responses and excessive use of drugs. Moreover, stressful situations lead to an increased level of stress hormones such as cortisol. In this case, the fight-or-flight response is an ordinary response to stress [43]. Those young people who are at risk of drug abuse may face low self-control and cognitive emotion regulation; hence, their addictive behaviors have been originated from their experiences and environment in which they have been living [44]. The more the number of stressful situations that one faces, the higher the drug abuse potential. In this case, the person commences using drugs when the ability to control emotions and self-esteem has been lost. In general, the above mentioned factors cause the quit addiction self-efficacy to fail [29].

Table 5: Path coefficients of direct effects between research variables in the initial and final model

Path	Path type	Initial model		Path type	Final model	
		β	P		β	P
Social support to quit addiction self-efficacy	Direct	0.089	0.157	Direct	-	-
Social support to self-control	Direct	0.196	0.001	Direct	0.196	0.001
Perceived stress to quit addiction self-efficacy	Direct	- 0.296	0.001	Direct	-0.317	0.001
Perceived stress to self-control	Direct	- 0.478	0.001	Direct	-0.478	0.001
Self-control to quit addiction self-efficacy	Direct	0.296	0.001	Direct	0.318	0.001

Table 6: Results of the Bootstrap method to investigate the indirect and intermediary paths

Predictor variable	Mediator Variable	Criterion variable	Initial model		Final model	
			Bootstrap	P	Bootstrap	P
Social support	Self-control	Quit addiction self-efficacy	0.122	0.025	0.131	0.024
Perceived stress	Self-control	Quit addiction self-efficacy	0.221	0.001	-0.323	0.001

4. Conclusion

The perceived stress can affect the addict's self-efficacy both directly or indirectly through the mediation of self-control while social support affects the quit addiction self-efficacy through the mediation of self-control indirectly. Therefore, improved social support in addicts provides more ability to control their emotions and feelings. In this case, they can have a better judgment on their abilities to inhibit relapse. Seemingly, other factors such as personal, inner, and motivational factors may have led to a lack of association

between social support and self-efficacy. Accordingly, addiction therapists should concentrate on self-control and relevant factors such as personality, resilience, self-esteem, etc., in order to encourage addicts to participate in the treatment procedure and its persistence. In this case, they will experience higher self-efficacy.

Strengths and Limitations

One of the major strengths of this study is the psychological and environmental study of drug addicts and

presenting a model. Results of the study emphasized the need to address self-control and social support in treatment seekers. This study also faced executive constraints such as security and protection constraints in centers. In addition social, personality, skills, and behavioral characteristics of drug addicts who seek treatment made it difficult to communicate with them. Another limitation of this study was its being cross-sectional, descriptive, correlational, and using a questionnaire to collect data. The population of the study was all drug addicts visiting detox clinics in Ahvaz which made it difficult to generalize the results to other populations and communities. Therefore, it is suggested to conduct similar studies on other populations and drug addicts in other communities.

Authors' Contributions

A.B., designed the study, collected the data, and conducted statistical analysis; B.M., and S.B., provided administrative, technical, and material support. R.P., revised the manuscript.

Conflicts of Interest

The Authors declare that there is no conflict of interest.

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