

The Mediating Effect of Mindfulness Level between Coping Strategies and Quality of Life for Drug Addicts after Returning to Society: Variance Test, Correlation Test and Bootstrap Analysis through SPSS

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Abstract: The purpose of this study is to explore the relationship among the level of mindfulness, coping strategies and quality of life of drug addicts after they returned to society, and to discuss the rationality of carrying out intervention measures based on mindfulness education. This study recruited 97 drug addicts who had returned to society in Qujing city, Yunnan Province, China. Participants completed the Five Facet Mindfulness Questionnaire (FFMQ), the Trait Coping Style Questionnaire (TCSQ) and the Quality of Life Scale for Drug Addicts (QOL-DA). Collected data were analyzed through SPSS 25.0, the variance test between group, correlation test and Bootstrap analysis was adopted. The results show that the score of positive coping and quality of life of drug addicts with high level of mindfulness are higher than those with low level of mindfulness, and the difference is statistically significant ($P < 0.05$). The mediating effect between positive coping and quality of life is 0.331, accounting for 72.1% of the total effect. The level of mindfulness mediates the relationship between coping strategies and quality of life of drug addicts returning to society. The results indicate that training to improve the level of mindfulness and coping skills should be carried out in certain communities.

1 INTRODUCTION

The problem of drug abuse has long been seen as a high priority by the Chinese authorities. Strict laws on the drug problem have been proved effective in preventing the spread of drugs within China. However, these laws unexpectedly hampered the efforts of drug addicts to return to normal life at the same time due to the perceived stigma and the social discrimination. How drug addicts return and integrate into the society after completing compulsory drug rehabilitation is a complex social problem and a hot topic in the field of drug rehabilitation in recent years. Although there has been a lot of researches suggesting solutions to the problem of drug addiction, there has been a lack of research on the quality of life of drug addicts after they return to society.

Studies have shown that individuals with drug addiction history have a significantly lower quality of life than the general population and are more likely to relapse into drug use even after they have completely

abandoned drugs (Idrissi, Ahami, Ghaihlan, Azzaoui, Mammad, 2018). Meanwhile, researches also show that coping strategies significantly affect individuals' quality of life (Deng 2009), and individuals with low quality of life are more likely to perceive depression and anxiety, and tend to feel more stress in life (Friedland, Renwick, Mccoll, 1996). Further, an Iranian study found that individuals who experienced stressful events were more likely to exhibit opiate use (Hassan, Askari, Pourmovahed, 2013). In other words, individuals' inappropriate coping strategies may lead to relapse behavior.

There is a relationship between individual mindfulness level and mental health. For example, relevant studies show that mindfulness level is negatively correlated with depression, anxiety and other negative emotions, and positively correlated with optimism, self-esteem and life satisfaction (Brown, Ryan 2003). In stressful situations, people with high mindfulness level used more problem solving coping strategy and less avoidance coping strategy.

Based on this, this study proposes the following hypotheses: The mindfulness level of drug addicts will affect their coping strategies when facing stressful events in life, while a positive or negative coping strategy will further affect the life quality of them. The main purpose of this study was to investigate the mediating role of mindfulness level between coping strategies (positive/negative) of drug addicts returning to society and their quality of life.

2 METHOD

2.1 Participants

Ninety-seven drug addicts were recruited from several typical communities in Qujing city, Yunnan Province, China, with the support of the Qujing Compulsory Isolation and Drug Treatment Center. All participants met the following criteria: (1) Within three years of returning to society after compulsory isolation; (2) Age range of 18~ 40 years; (3) No severe mental illness has been diagnosed and no symptoms of mental illness have been shown.

A total of 112 questionnaires were sent out and 97 valid questionnaires were collected, with an effective rate of 86. 6%. Among all subjects, 39 were females with a mean age of 29.5 years (range 19-39 years) and 58 were males with a mean age of 30.4 years (range 22-40 years). The education level of the subjects was distributed in different education levels: 9 people (9.3%) had no education or did not complete primary education, 42 people (43.3%) had and only completed primary education, 40 people (41.2%) had and only completed middle school education, and 6 people (6.2%) had completed junior college education or above. Among the subjects, 33 (34.0%) were unemployed and 64 (66.0%) were employed.

2.2 Five Facet Mindfulness Questionnaire, FFMQ

The Five Facet Mindfulness Questionnaire was compiled by Baer (Baer 2006), and the Chinese version was revised by Deng Yuqin (Deng 2009), which was proved to have good reliability and validity in subsequent studies. The scale was composed of 39 items, including 5 factors of observation, description, conscious action, non-judgment and non-reaction. Participants' level of mindfulness was measured using 5-level Likert scale, and the sum of each factor represented the overall

level of mindfulness. In this study, the Cronbach α of the whole scale was 0.931.

2.3 Trait Coping Style Questionnaire, TCSQ

Trait Coping Style Questionnaire was compiled by Kang Gan-jin in 1993 and further revised in 1999 (Jiang, & Zhu 1999). The scale consists of 20 items, which are divided into positive coping subscales (10 items) and negative coping subscales (10 items). The scale adopted five Likert scales, from "definitely yes" to "definitely no", with five scores of 5, 4, 3, 2, and 1. Participants obtained their coping strategy level by choosing the most suitable coping style. The higher the score of negative coping, the more likely the participants were to respond negatively, such as avoiding problems and suffering. The higher the positive coping score, the more likely the participants were to be positive coping, such as taking the initiative to solve problems. The Cronbach α of the two subscales are 0.601 and 0.606 respectively.

2.4 Quality of Life Scale for Drug Addicts, QOL-DA

Quality of Life Scale (QOLS) was first compiled by American psychologist John Flanagan in the 1970s to understand the Quality of Life of people with chronic diseases (Bureckhardt, Anderson 2003). After the questionnaire was compiled, the reliability, content and structural validity of the questionnaire were ensured in subsequent studies, and then the questionnaire was translated into multiple languages and used in different cultures. Quality of Life Scale For Drug Addicts were compiled by Wan Chonghua (Wan 1997). The scale was divided into four dimensions, namely, physical function, psychological function, withdrawal symptoms and social function, with a total of 40 items. The scale was multi-dimensional, and items were also scored by Likert 5-level scoring method, that is, 1-5 points were scored according to 1-5 levels of the answers selected. Among all items, 8 items are forward items, which are scored directly, and the rest are backward items, which need to be converted before scoring. In this study, the Cronbach α of this scale is 0.821.

2.5 Statistical Methods

All data were analyzed using SPSS 25.0 software. Demographic variables were analyzed using descriptive statistics. The t-test was used for

comparison between groups. Stepwise regression was used to investigate the correlation between the level of mindfulness, coping strategies and quality of life of drug users. Bootstrap mediating effect analysis was used to further test whether there were significant direct or indirect effects among variables. Statistical test level $\alpha=0.05$.

3 RESULTS

3.1 Descriptive Statistic

Table 1 lists the minimum, maximum, mean, and standard deviation of FFMQ, TCSQ, and QOL-DA

Table 1: Descriptive statistic of FFMQ, TCSQ, and QOL-DA results (n=97).

	Min	Max	Mean	SD
FFMQ	85	162	126.35	24.00
TCSQ(Positive)	18	46	34.15	6.09
TCSQ(Negative)	14	35	24.73	4.45
QOL-DA	89	162	124.28	16.57

3.2 Significance Test between Groups

According to the percentile of the total score of the mindfulness level, all the participants were divided into two groups: the total group of high mindfulness level, whose FFMQ total score was higher than the 50th percentile; the overall group with low levels of mindfulness had FFMQ scores below the 50th percentile. Table 2 shows the mean scores of negative coping, positive coping, and quality of life between the two mindfulness groups. The results showed that

scores. The quality of life of drug addicts after they return to society varies widely with a SD of 24.00, indicating a stark difference in their lives. This result is consistent with the prediction when the sample was selected, after completing the compulsory drug rehabilitation, some drug users soon found jobs and started a new life, while some subjects could not get rid of the harm brought by drugs and lived in poverty. This phenomenon was reflected in the results of all other questionnaires as well. In FFMQ scale, the highest score was almost twice the lowest score with a SD of 16.57. In the TCSQ scale, whether negative or positive, the highest score was more than twice the lowest score.

the mean value of positive coping in the high mindfulness group was higher than that in the low mindfulness group, and the difference was statistically significant ($P<0.05$). The mean value of negative coping in the high mindfulness group was lower than that in the low mindfulness group, and the difference was statistically significant ($P<0.05$). The quality of life score of the high level of mindfulness group was higher than that of the low level of mindfulness group, and the difference was statistically significant ($P<0.001$)

Table 2: Difference test between groups of high and low mindfulness level.

	F	t	p	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
TCSQ(Positive)	4.13	-2.93	.004	-3.488	-5.850	-1.126
TCSQ(Negative)	2.87	3.32	.001	2.851	1.144	4.559
QOL-DA	3.73	-6.55	<.001	-18.379	-23.952	-12.806

3.3 Correlation Analysis

The correlation between mindfulness level, positive and negative coping strategies and quality of life of drug addicts was tested. The four factors are all significantly correlated at the 0.01 level, while mindfulness level was positively correlated with positive coping and quality of life with a regression

coefficient of 0.42 and 0.68 respectively, and negatively correlated with negative coping with the regression coefficient of -0.46. Subsequently, the positive coping was positively correlated with quality of life with the regression coefficient of 0.37, while the negative coping was negatively correlated with both positive coping and quality of life with the regression coefficient of -0.3 and -0.39 respectively.

Table 3: Correlation between mindfulness level, coping strategies and quality of life.

		FFMQ	TCSQ(Positive)	TCSQ(Negative)	QOL-DA
FFMQ	r	1	.42**	-.46**	.68**
	p		.000	.000	.000
TCSQ (Positive)	r	.42**	1	-.30**	.37**
	p	.000		.002	.000
TCSQ (Negative)	r	-.46**	-.30**	1	-.39**
	p	.000	.002		.000
QOL-DA	r	.68**	.37**	-.39**	1
	p	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed).

3.4 Mediating Effect Analysis

Stepwise regression and Bootstrap methods were used to test the mediating effect of the level of mindfulness, taking the quality of life of drug addicts as the dependent variable, positive and negative coping as the independent variable, and the level of mindfulness as the mediating variable. The results

indicate that the prediction of coping strategies over quality of life is not significant when the mindfulness level was introduced, which evidences the full mediation between them. The results were shown in table 4. A model of the mediating effect model of mindfulness level was subsequently established, indicating that percentage of indirect effects was 72.1%.

Table 4: Regression analysis of the mediating effect model of mindfulness level (standardized).

Predictor variable	Model 1		Model 2		Model 3	
	β	t	β	t	β	t
Coping	.459	5.038***	.538	6.221***	.128	1.454
Mindfulness Level					.615	6.968***
R ²	.21		.29		.48	
F	25.386***		38.703***		43.325***	

Model 1: Coping predicts the quality of life; Model 2: Coping predicts mindfulness level; Model3: Coping and mindfulness level predict quality of life.

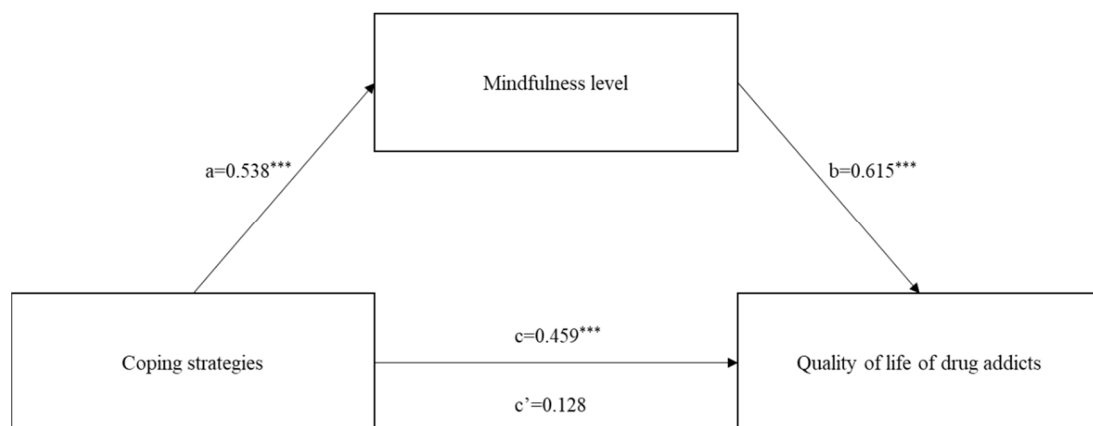


Figure 1: Path graph of coping, mindfulness level and quality of life.

4 DISCUSSION

This study explored the relationship between the level of mindfulness, coping style and quality of life of drug users after completing compulsory drug withdrawal and returning to society, and proposed new findings. Participants recruited for this study had a history of substance abuse and addiction and had a significantly lower quality of life than non-drug exposed groups (Li & Wu 1995). These results indicate that although drug users have returned to society, the quality of life is not good. The quality of life of drug users is lower than that of the general population in terms of physical, psychological and social relations (Wan, Fang & Liying 2000). These are consistent with our findings.

As expected, levels of mindfulness significantly mediated the relationship between positive coping and quality of life in this study. Drug addicts with more positive coping styles had higher levels of mindfulness and better quality of life. Compared with the general population, drug users used more avoidant coping and less active behavioral coping (Ma, Yang, & Yang 2017). For drug users, more stressful life events, greater mental stress, and inappropriate and ineffective coping strategies may play an important role in their addiction and relapse (Kruse 2011).

Therefore, if drug addicts lack appropriate guidance and adequate social and family support, they are easily frustrated by stressful events in life. Under the combined effect of low level of mindfulness and negative coping style, it is difficult for them to successfully integrate into society, thus reducing their quality of life. At the same time, low quality of life leads to more stressful events, and more stressful events lead to more difficulties in improving quality of life, creating a vicious cycle that is difficult to break out of. This corollary provides an explanation to the problem pointed out by Gorelick in 1993 that relapse is widespread among drug users, even they have succeeded in compulsory drug withdrawal (Gorelick 1993).

In communities with serious drug abuse problems, mindfulness education should be widely carried out for drug addicts returning to society. High levels of mindfulness help them adopt positive coping strategies in the face of various stresses and further improve their quality of life. At the same time, special institutions should be established to train drug users in coping flexibility. Active coping strategies can also significantly improve the quality of life of individuals. In addition, attention should be paid to the demographic characteristics of drug addicts

returning to society and appropriate interventions should be carried out to prevent relapse. For example, studies have shown that specific interventions and treatments have significantly different effects on drug users of different genders (Nelson, Kauffman & Dore 1995), and strict implementation of a single intervention will not produce the expected results.

5 CONCLUSION

This study investigated the relationship between the level of mindfulness, coping strategies and quality of life of drug addicts after returning to society. The level of mindfulness is positively correlated with both positive coping and quality of life, and negatively correlated with negative coping, which further negatively predicted the quality of life. Individuals with high levels of mindfulness scored significantly higher on positive coping and quality of life than individuals with low levels of mindfulness. The level of mindfulness significantly mediated the relationship between positive coping and quality of life. Understanding the relationship between levels of mindfulness, coping style and quality of life is of great significance to help drug addicts successfully return to society, prevent potential relapse risk, and improve their quality of life.

There are limitations to this study. Because of the widespread problem of relapse, the number of drug users who successfully return to society is very rare, regardless of their living conditions. A total of 112 subjects were recruited in this study, 97 of whom gave valid questionnaire results. This number is not enough to establish a sufficient structural equation model of good model fit. In addition, the cross-sectional non-longitudinal design of this study makes it difficult to fully explain how the level of mindfulness of drug users is formed, and the practical effect of mindfulness-based intervention on improving the quality of life of drug users is unclear. Follow-up studies can expand the number of participants worldwide and proceed further in this direction.

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