

Health-Related Quality of Life and Influencing Factors in Drug Addicts based on the scale QLICD-DA: A Cross-Sectional Study

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Research

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Abstract

Background

Drug abuse has many negative effects not only on individuals but also on society. Nowadays, researchers pay a lot of attention to the quality of life of drug-dependent persons. However, there are few scales available to measure the quality of life of people with substance-abuse disorders. A quality of life scale for patients with drug addiction/dependence (QLICD-DA) developed in China according to their actual situation could be used to measure the quality of life of drug abusers. It has good validity and reliability and is sensitive to the quality of life of drug-dependent persons.

Methods

We selected 192 drug-dependent persons as participants and they all completed the general information questionnaire and the QLICD-DA. We used a t-test to compare the scores of the quality of life of the participants with the norm in different domains, then we used one-way ANOVA to screen for variables. A stepwise regression method was applied to explore the influencing factors of the quality of life of the participants.

Results

The quality of life of the participants was lower than the norm in the physiological domain, psychological domain, social domain, and common general domain, and the differences were statistically significant ($p < 0.001$). Sex and mode of drug abuse were the influencing factors in total score ($p = 0.006$, $p < 0.001$) and specific domain ($p < 0.001$, $p = 0.019$). Past family atmosphere and the mode of drug abuse were the influencing factors in the common general domain ($p = 0.027$, $p = 0.037$).

Conclusion

The quality of life of people dependent on drugs was worse than that of patients with other chronic diseases, and the influencing factors of the quality of life of drug abusers were sex, mode of drug abuse, and past family atmosphere. This study also verified the application of QLICD-DA in a real-life setting.

Background

The concepts of quality of life (QOL) and health-related quality life (HRQOL) have been undergoing development in recent years. According to the definition of quality of life, it is the individual's perception of their position in life in the culture and value system in which they live and it is associated with their goals, expectations, standards, and concerns[1]. It can be seen as a sense of well-being, incorporating psychological, physical, social, and mental aspects[2].

As everyone knows, the drug problem has always been present around the world, and it seriously affects human health. Drug abuse in China began in the Qing Dynasty when the western colonists imported

opium to China[3]. When the People's Republic of China was founded, China's drug problem was under control. At that time, China was known as "a country free from drugs"[4]. However, the drug problem has become the focus of social concern again since the 1980s[5]. According to the *World Drug Report 2020* of the United Nations, drug use is increasing all over the world. In 2018, it was estimated that there were 269 million drug-dependent persons, accounting for 5.3% of the global population. Compared with 2009, there was an increase of 30% by 2018. Marijuana is the most commonly used substance, and it was estimated that 192 million people were using marijuana in 2018.

However, opioids are the most harmful. In the past decade, the total number of deaths caused by opioid abuse has increased by 71%. More than 11 million people around the world are currently injecting drugs, 1.4 million are infected with HIV, 5.5 million are infected with hepatitis C, and 1.2 million are infected with hepatitis C and HIV. Affected by COVID-19, the global unemployment rate is rising, prompting the poorest people to take drugs and get involved in drug trafficking.

In China, the situation of drug abuse is not optimistic[6]. According to the *Report on Drug Situation in China in 2019* issued by the State Council, there are 2.148 million drug-dependent persons in China, accounting for 0.16% of the total population by the end of 2019. The number of drug abusers is quite large and it is difficult to consolidate control of this situation. Besides, with the rapid development of economic globalization and social informatization, the drug problem is spreading all over the world, especially due to increasing penetration of drugs by surrounding drug sources and international drug trafficking groups, which has become an external threat to China's illegal drug situation in recent years[7].

Since the 1990s, in large-scale biomedical clinical trials, quality of life has always been at least a secondary endpoint[8] since it is an important outcome measure in therapeutic research and service evaluation research[9]. Although the development and implementation of scales to measure quality of life in different areas, such as cardiovascular disease, has become increasingly common, research into quality of life during drug abuse is still relatively scarce[10, 11]. Over the last 20 years, people have paid more attention to the quality of life of drug-dependent persons, which have led many to realize that the problem of drug abuse is akin to having a chronic disease[12]. According to previous studies, it was pointed out that the quality of life of drug-dependent persons is lower than that of non-users[13]. It has negative effects on individuals' physical and mental health and their social relationships[14]. The quality of life of heroin addicts is seriously damaged, especially the mental components[15].

However, most researchers use the general measures of QOL assessment such as the SF-36, SF-12, NHP, and WHOQOL-BREF. The problem is these instruments are lacking sensitivity to assess the situation of drug dependence[16]. There are few specific scales for evaluating the QOL of drug abusers. Injection drug use quality of life scale (IDUQOL)[17] and Health-Related Quality of Life Test in drug abusers (HRQOLDA) [10] are currently the best-known scales for drug abusers. As a result, we developed a quality of life of scale for patients with drug addiction/dependence (QOL-DA) [16], which is the first specific QOL instrument for individuals with a drug dependency in China, to adapt to the actual situation of China. The QOL-DA has good reliability and validity[18]. Considering same-class diseases often share many things in

common, a popular approach in recent years has been to develop a general module for a class of diseases and then additional modules to capture individual differences in different people and diseases. To meet this trend, we have developed the Chinese QOL instruments system called QLICD (Quality of Life Instruments for Chronic Diseases) by combining a general module and disease-specific modules. The second edition of this system includes a general module (QLICD-GM) which can be used with all types of chronic disease patients, and 33 specific modules for 33 different diseases with each module being used for only the relevant disease including hypertension, peptic ulcer, diabetes, and also drug addiction etc.. The QLICD-DA is one scale of this system developed for drug addiction based on the QOL-DA and the modular approach. Therefore, this paper aimed to use the QOL-DA to explore the quality of life and the influencing factors of people with substance-abuse disorders, with the goal of helping them get through the period of detoxification better and to provide a reference tool for health policymakers.

Methods

Drug addiction is related to the health of the patients. Their quality of life mentioned in this paper is comparable to HRQOL, which is the impact of subjective perceptions on physical, mental status and well-being, and on social functioning, and it can be reduced to four domains. Although we have mainly focused on HRQOL, we use the more common abbreviation QOL as a synonym for HRQOL.

Participants and procedures

We used random sampling method to select 192 drug-dependent individuals in a compulsory drug treatment center in Kunming, China. The respondents, who had a certain degree of education and voluntarily participated in the survey and gave the written consent, were required to independently complete the quality of life questionnaire. The respondents with severe mental illness, language disorders, and cognitive impairment were excluded. After they agreed to take part in this survey, each participant completed the general information questionnaire and the QLICD-DA.

Instruments

The general information questionnaire

The general information questionnaire is a self-made questionnaire, including questions about demographic and sociological characteristics (age, gender, national origin, marital status, medical insurance, occupation, education, income) and the condition of drug abuse (the economic status of the residence, past family atmosphere, social atmosphere of the residence, lifestyle, nutritional status, the greatest drug desire after detoxification, length of drug abuse, times of abstaining from the drug, drug dependence, mode of drug abuse, and typical drug dosage).

The scale QLICD-DA

The formal version of QLICD-DA (V2.0) was formed by combining the general module QLICD-GM (V2.0) which includes 3 domains and 28 items (9 items for physiological function, 11 items for psychological

function and 8 items for social function), and the specific module which has 16 items regards to withdrawal symptoms and side effects. The score of the QLICD-DA can be divided into two categories: (1) the item score, and (2) the score of each domain, the general module, and the total. Each item was graded in 5 levels. The options were: 1-not at all, 2-a little bit, 3-somewhat, 4-quite a bit, 5-very much). The positively stated items are scored from 1 ~ 5 points, while the negatively stated items are reversed. All of the items of the scale are forward transformed, and then the raw score of each domain, the general module, and the total scale are calculated. The sum of the scores of each item in the same domain constituted the raw score of the domain. The score of the general domain is calculated by summing the score of the physiological domain, psychological domain, and social domain. The general module score and the specific module score constitute the raw score of the total scale. The raw score is converted into the standard score with a 0-100 scale using the formula: $SS=(RS-Min) \times 100/R$, where SS, RS, Min and R represent the standardized score, raw score, minimum score, and range of scores, respectively.

Data analysis

The data were analyzed by SPSS 22.0. We used descriptive statistics to analyze the total score and the score of each domain of quality of life of the drug abusers and obtained the extremum and the average. Then the t-test was used to compare the quality of life of the drug users to patients with chronic diseases because previous studies have suggested that drug addiction is a chronic disease[19]. Therefore, this result was compared with the national norm of patients with chronic diseases in four domains, the physiological domain, psychological domain, social domain, and the specific domain. Next, we used one-way ANOVA to screen the independent variables that affect the quality of life of the participants. Then, we quantified the selected independent variables (see Table 1 in detail) and entered them into a linear regression model. After we quantified the independent variables, the total score and the score of each domain for the participants were used as the dependent variables in the linear regression.

Table 1 The variable assignment of multiple linear regression

Variables	Description/recoding
Age(X1)	Measured value
Sex(X2)	1 Male 2 Female
Nation (X3)	1 Han 2 Others
Education(X4)	1 Primary school 2 Junior middle school 3 High school 4 Junior college 5 College or higher
Income(X5)	Measured value
length of drug abuse(X6)	Measured value
times of abstaining from drug(X7)	Measured value
drug dependence(X8)	1 not a all 2 somewhat 3 quite a bit 4 very much
mode of drug abuse(X9)	1 Intravenous injection 2 Others
Drug dosage (X10)	1 not a all 2 a little bit 3 somewhat 4 quite a bit 5 very much
The economic status of residence (X11)	1 not a all 2 a little bit 3 somewhat 4 quite a bit 5 very much
Past family atmosphere(X12)	1 not a all 2 a little bit 3 somewhat 4 quite a bit 5 very much
Social atmosphere of residence (X13)	1 not a all 2 a little bit 3 somewhat 4 quite a bit 5 very much 1 Live alone 2 Others
Life style(X14)	1 Complete independence 2 Others
The greatest desire after detoxification(X15)	

Results

There were 192 participants, ranging in age from 19 to 59, with an average age of 34.86 ± 0.59 . Most of them were male ($n = 135, 70.3\%$) and of Han nationality ($n = 159, 82.8\%$). In terms of personal income, more than a third of the participants' incomes were less than 1,000 yuan/year ($n = 45, 34.9\%$). Besides, more than half of them were single or divorced ($n = 135, 70.3\%$) and only 1% ($n = 2$) had a college degree or above (Table 2).

Table 2
Socio-demographic characteristics of the Sample (n = 192)

Characteristics	N	%	Characteristics	N	%
Gender			Marital status		
Male	135	70.3%	Married	57	29.7%
Female	57	29.7%	Others	135	70.3%
Nation			Medical insurance		
Han	159	82.8%	Public insurance	23	12%
Others	33	17.2%	Others	169	88%
Age			Occupation		
< 30	49	25.5%	Factory Worker	26	13.5%
30–39	82	42.7%	Others	166	86.5%
> 39	61	31.8%	Education		
Missing	-	-	Primary school	60	31.3%
Income			Junior high school	93	48.4%
0 ~ 1000	45	34.9%	High school	37	19.3%
1001 ~ 5000	15	7.8%	Junior college	2	1%
5001 ~ 10000	22	17.1%	College or higher	0	-

Table 3 shows the participants' quality of life in six areas, which were the physiological domain, psychological domain, social domain, the specific domain, the general domain, and the total score. We found that the average physical score was higher compared with the other domains (mean = 58.67 ± 9.74). Besides, one notable finding was that the average score in the special domain was the lowest (mean = 36.84 ± 19.24) and the range of the special domain was the widest with a difference of 95.31 points (maximum = 100.00, minimum = 4.69).

Table 3
Quality of life scores in drug addicts based on the QLICD-DA and comparisons with the norm

Domains	Maximum	Minimum	Mean	Norm	t	p
Physical domain(PHD)	94.44	30.56	58.67 ± 9.74	62.45 ± 15.37	-5.383	< 0.001
Psychological domain(PSD)	84.09	15.91	50.57 ± 14.47	62.23 ± 17.79	-11.170	< 0.001
Social domain(SOD)	87.50	18.75	57.18 ± 14.51	72.54 ± 15.55	-14.670	< 0.001
Common general domain(CGD)	79.46	26.79	55.06 ± 9.84	78.24 ± 43.91	-32.629	< 0.001
Total(TOT)	81.82	25.00	48.43 ± 10.02	-	-	-
Specific domain(SPD)	100.00	4.69	36.84 ± 19.24	-	-	-

Compared with the other two domains, the average score of the psychological domain was lower. Compared with the norm, we found that the average score of the participants was dramatically lower than the norm and this difference was statistically significant ($p < 0.05$) (Table 3). Compared with the norm, we found that the average score of the psychological domain was also dramatically lower than the other two domains (physical domain and social domain). The average score of the participants in every domain was lower than the norm and the differences were statistically significant ($p < 0.05$) (Table 3).

By linear regression, we excluded factors from the physiological, psychological, and social domains because there were no significant differences ($p \geq 0.05$). Finally, we found that the sex and mode of drug abuse were the same major influencing factors of the total score and the specific domain. Besides, the general domain's significant influencing factors were past family atmosphere and mode of drug abuse. Statistical significance was accepted at the $p < 0.05$ level. Overall, sex, mode of drug abuse, and past family atmosphere were the main influencing factors of quality of life of the participants (Table 4).

Table 4
Impact factors on quality of life in drug addicts selected by multiple linear regressions

Domains	Factors	B	Std. Error	Standardized B	t	p
The Total (TOT)	Constant	61.831	3.270		18.910	0.000
	Mode of drug abuse	-5.077	1.800	-0.244	-2.820	0.006
	Sex	-4.744	1.952	-0.210	-2.431	0.000
The Common/ general domain (CGD)	Constant	51.888	4.384	0.195	11.835	0.000
	Past family atmosphere	2.457	1.095		2.244	0.027
	Mode of drug abuse	-3.671	1.741	-0.183	-2.108	0.037
The Specific domain (SPD)	Constants	77.459	8.298	-0.349	9.334	0.000
	Sex	-14.910	3.647		-4.088	0.000
	Mode of drug abuse	-7.809	3.283	-0.198	-2.379	0.019

Discussions

In this paper, we used the QLICD-DA scale to measure the quality of life of people with substance-abuse disorders. To the best of our knowledge, generic QOL instruments, such as the SF-36, were developed for the general population, and they have biases and low sensitivity in measuring the quality of life of drug-dependent people. These scales can only reflect a small part of the quality of life of persons with substance-abuse disorders, so it is not sufficient to explore the influencing factors. Compared with generic QOL instruments, the QLICD-DA scale has better validity, reliability, and responsiveness. This scale adopts a combination of a general module and the specific module, which is suitable for the Chinese culture and is sensitive to the factors affecting the quality of life of drug-dependent people. The QLICD-DA has been applied by many Chinese scholars after it was first publishing, reflecting its stability and effectiveness. For example, Zhang et al.[20] used the QLICD-DA scale to measure the quality of life and its influencing factors for maintenance patients and Guo et al.[21] also measured the quality of life and its influencing factors on male drug-dependent people in compulsory treatment. Therefore, we can use the QLICD-DA to identify the factors influencing the quality of life of drug-dependent persons more directly and effectively.

It is concluded from this study that the quality of life of people with substance-abuse disorders is lower than for patients with other chronic diseases. A similar observation has been made by Smith and Larson [22]. Drug addiction is recurrent and chronic[23], similar to chronic diseases. Susannah et al. [24] considered that heroin dependence is a serious chronic disease, which has harmful effects on physical and mental health. Compared with patients with other chronic diseases, the decline in the quality of life of drug-dependent persons is determined by the comprehensive negative impact of drug use in several areas. Moreover, drug-dependent persons usually only seek treatment when they suffer from serious consequences, while patients with other chronic diseases pay more attention to their diseases and will engage in a certain degree of prevention and health care consumption[25]. Moreover, drug-dependent persons are more likely to experience criminal charges, which puts them under various pressures.

Mònica Astals et al.[15] also found that the psychological domain of heroin patients was seriously damaged, which is similar the findings of our study. Anxiety disorders and mood disorders are common mental disorders among people who abuse drugs[26]. There are some reasons for this. Firstly, drug abuse easily leads to adverse consequences, and may even prompt the performance of criminal acts, which applies a psychological burden. What's more, the feeling of withdrawal when attempting to stop drug abuse is strong and unbearable, causing physical and mental suffering. Finally, substance abusers are not respected or accepted in society, causing them to lose the support of their friends and family. There is no doubt that these factors together will generate many negative emotions. Therefore, it can be seen that the physical and mental health of drug-dependent persons must be taken seriously.

On the whole, sex played an important role in the total score and in the special domain. The quality of life of female drug abusers is worse than that of male drug abusers. The mode of drug abuse was found to be a common factor affecting the total score, common general domain, and the special domain. The quality of life of people who administered addictive drugs by snorting or oral administration was relatively poor. What's more, a bad past family atmosphere worsened their quality of life. A specific discussion is given below.

Sex is a vital influencing factor. Our results showed that the quality of life of female drug users was not good, which was consistent with Karow et al.[27]. Here are some reasons for why this may be. First, although the number of women who abuse drugs is relatively low, their dependence tends to be more severe than that of men. What's more, Chinese society gives men more personal freedom and it has a lot of restrictions on women. The social tolerance of female drug users is much lower than that of male drug users, so female drug users are more likely to be rejected by their relatives and friends[28]. Social stigma would increase these women's sense of helplessness and negative emotions. Also, drug use increases women's risk of AIDS/HIV, which is possibly due to needle sharing or prostitution[29]. Meanwhile, in the present study, we also found that female drug abusers were more likely to suffer from overt mental illness than male drug abusers, such as depression[30].

Our findings indicated that the modes of drug abuse are also an important influencing factor. This study concluded that the quality of life of people who use other modes of drug use is lower than among those

who inject drugs. The author conjectures that although intravenous injection is harmful to the human body, other ways of administering drugs, such as by inhalation, will lead to a stronger drug addiction. What's more, inhalation users are more likely to relapse after treatment.

At the same time, the past family atmosphere cannot be ignored. Several previous studies also clearly demonstrated that drug addiction is related to broken family relationships and an unhealthy family atmosphere[31]. A similar observation has been documented for the effect of the past family atmosphere on drug addiction. Al-Kandari et al.[32] reported that having one person in the family taking drugs often leads to another, especially in situations where a parent abusing drugs leads to the children doing so as well. Albert Bandura, a famous psychologist, put forward the theory of observation learning. It's a powerful theory that proposes that children learn from their parents by imitation. Moreover, in this present study, we found that drug abuse was closely related to childhood trauma[33]. An uneasy and tense family atmosphere can make children feel insecure. Consequently, they tend to rely on drugs to compensate for their anxiety. Families with a supportive structure tend to pay more attention to the reasons why their members are using drugs and they are more willing to help them return to a normal life. Drug-dependent persons are affected by family support and use it as a positive force and a motivation to return to society. In contrast, if the reason for the drug abuse comes from the bad family atmosphere, it is difficult for these individuals to find the necessary psychological support to return to normal life, which may make the detoxification stage more intolerable.

Generally speaking, we have revealed that the quality of life of persons with a substance-abuse disorder is low. They may have symptoms of pain, which can easily be accompanied by irritability. Besides, drug abuse will have a certain negative impact on their work and life. For example, relatives will alienate them and their interpersonal relationships will worsen, which could put them in a vicious downward cycle. Therefore, we must pay more attention to the quality of life of people who abuse drugs, which can help them to get rid of their habit and to find meaning in life.

There are some suggestions based on our results. First of all, the government needs to attach importance to the causes of drug addiction, building a good social atmosphere and eliminating discrimination against drug abusers. Also, the government must help the rehabilitated people to integrate with society, providing jobs and relevant assistance services. Moreover, the community is regarded as an early place to prevent drug addiction, playing an important role in the early identification of possible drug addiction. What's more, the community has a responsibility to increase publicity efforts to provide education about the causes of drug addiction and to provide psychological counseling services to relieve people's stress. In the meantime, the community is also seen as the main front for drug treatment. Compared with China, many foreign community's drug rehabilitation practices focus on a people-oriented model, correcting the drug dependence psychology, and enhancing social adaptability. The low-level development of the community, the lack of funds, and a lack of professional teams in the community are still problems hindering China's community drug rehabilitation.

The family is also the primary site of drug addiction prevention. The family needs to create a harmonious atmosphere and be aware of when family members are beginning drug-taking behaviors. We should not discriminate against and alienate drug-dependent persons. On the contrary, we should them more support so that they can get through their difficulties with confidence.

For intravenous drug users, we should pay more attention to their physiological and psychological needs, and provide more social support. Recovery is a long process and they should be guided throughout the detoxification and recovery process.

Limitations

The participants in this study were only selected from one detoxification center, and the verification of the QLICD-DA scale is only applicable to heroin patients. Its application in other environments and among other types of drug abuse needs to be further explored.

Conclusions

All in all, the QLICD-DA has a good response, validity, and reliability, and it is more sensitive to the quality of life of drug abusers. In this study, the QLICD-DA was used to verify that the quality of life of drug abusers was poor. Sex, mode of drug use, and family atmosphere all affected the quality of life of drug-dependent persons. Therefore, effective measures should be developed to improve the quality of life of people with substance-abuse disorders.

Declarations

Ethics approval and consent to participate

The study protocol and the informed consent form were approved by the IRB (institutional review board) of Kunming Medical University (30860248). The respondents were voluntary and provided written consent for participation.

Consent to publish

The authors understand and agree to publish.

Availability of data and materials

The data (two formats: SPSS and Excel) can be available by request from Prof. Chonghua Wan (Email: wanchh@hotmail.com).

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

WCH and LXM designed the study. JJM, LXM performed the data collection. WCH,MZL, ZY performed data analyses, and all authors contributed to interpreting the data. WCH,MZL and LYX wrote the first draft, which was critically revised by all others. All authors have read and approved the final manuscript.

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