Published in final edited form as:

Int J Nurs Stud. 2011 September ; 48(9): 1080–1095. doi:10.1016/j.ijnurstu.2011.02.012.

Development and validation of a quality of life instrument for patients with drug dependence: Comparisons with SF-36 and WHOQOL-100

Chonghua Wan^{a,*}, Jiqian Fang^b, Runsheng Jiang^c, Jie Shen^d, Dan Jiang^c, Xin Tu^e, Susan Messing^e, and Wan Tang^e

^aSchool of Humanities and Management, Guangdong Medical College, Dongguan 523808, China

^bSchool of Public Health, Sun Yat-Sen University, Guangzhou 510080, China

^cKunming Medical University, Kunming 650031, China

^dKunming Municipal Mandatory Detoxification and Rehabilitation Center, Kunming, Yunnan 650301, China

^eDept. of Biostatistics and Computational Biology, University of Rochester, NY 14642, United States

Abstract

Aim—Our goal was to develop a self-administered quality of life scale for patients with drug addiction/dependence (QOL-DA) and compare it with the SF-36 and the WHOQOL-100.

Methods—Employing theory and methodology of rating scale construction, a self-administered quality of life instrument for individuals with drug dependence QOL-DA was developed and evaluated utilizing responses from 212 drug-dependent subjects at the Kunming Municipal Mandatory Detoxification and Rehabilitation Center in China. Quality of life was measured using the SF-36, WHOQOL-100 and QOL-DA three times during the detoxification.

Results—Test-retest reliability in the domains of physical function, psychological function, social function and toxicity were 0.82, 0.64, 0.78, and 0.76, respectively. Cronbach's coefficient for the 4 domains was 0.87, 0.89, 0.93 and 0.86, respectively. Correlations and factor analysis showed good construct validity. Criterion-related and convergent validity was confirmed by using the SF-36 and the WHOQOL-100 simultaneously. The instrument does show the change in QOL after two weeks of detoxification with higher standardized response mean higher than that of SF-36 and WHOQOL-100.

Conclusion—The instrument developed has good validity, reliability and better responsiveness than instruments currently used, and can be employed effectively to measure the quality of life of individuals with drug dependence.

Keywords

Drug dependency; Psychometric properties; Standardized response mean; SF-36; WHOQOL-100

1. Introduction

In the last 30 years, the research on quality of life (QOL) as well as health related quality of life (HRQOL) in the medical field has developed rapidly and has gained international attention. The assessment of quality of life has been applied as a significant outcome indicator in patients and certain cohorts (such as the elderly) in the fields of clinical trials, public health, resource allocation and policymaking. (Cox et al., 1992). Measurements of quality of life have been broadly used to evaluate treatments for cancer and chronic diseases.

It is well known that drug abuse has become a serious social and health problem worldwide. In China, although drug dependency had been stamped out in the 1950s, it reappeared after China's economic reforms and opening-up to the world. The number of registered drug users increased from 70,000 in 1990 to 1.16 million at the end of 2005, with three major characteristics or trends: lower age, higher proportion of intravenous injection, and higher proportion of heroin use. In the past decade, this has also become evident in rural areas, especially in the northwest and central regions of the country, where 72.7% of Chinese counties (cities or districts) reported problems with drug usage (Lu et al., 2008).

Studies on quality of life have recently started to look at drug dependency beyond the presence and severity of addiction symptoms and the side effects of treatments by examining how drug-addicted patients perceive and experience the repercussions on their daily life (Revicki et al., 2000; Zubaran and Foresti, 2009). Several studies involving quality of life in the field of drug dependence have been reported (Donovan et al., 2005; De Maeyer et al., 2010). Donovan et al. (2005) reviewed research on quality of life as an outcome measure in alcoholism treatment and found that thirty-six studies, published between 1993 and 2004, used the term "quality of life" to describe a status or outcome for individuals diagnosed with or being treated for alcohol abuse. In total, twelve different QOL measures were reported in these studies. Alcoholics had lower levels of QOL when compared with the general population norm or when compared with subjects with other chronic health problems. This relationship appeared to be moderated by a number of socio-demographic and client characteristics, such as age, education, gender and co-occurring psychiatric disorders. Puigdollers et al. (2004) studied quality of life of heroin users entering methadone maintenance treatment; Fassino et al. (2004) carried out a study on quality of life and personality disorders in heroin abusers.

Recently, De Maeyer et al. (2010) summarized and differentiated the available information on QOL in opiate-dependent individuals, finding that these individuals reported a lower (HR)QOL when compared with the general population and with people who had various medical illnesses. Most of the studies used generic measures of QOL assessments given the lack of specific instruments for drug dependency: da Silva Lima et al. (2005) used the World Health Organization Instrument (WHOQOL-BREF) and the Medical Outcomes study Short-forms SF-36, Daepfen et al. (1998) used the SF-36, and Foster et al. (2000) used the General Health Questionnaire (GHQ-12) and the Nottingham Health Profile (NHP). These instruments measure common issues of QOL but lack the sensitivity to evaluate treatments for drug dependency.

To our knowledge, only two specific drug dependency instruments: injection drug use quality of life scale (IDUQOL) and health-related quality of life test in drug abusers (HRQOLDA) have been reported (Hubley et al., 2005, 2007; Lozano Rojas et al., 2009). The IDUQOL scale, using a 7-point Likert-type scale ranging from 1 (very dissatisfied) to 7 (very satisfied), was designed to capture the unique and individual circumstances that determine quality of life among injection drug users. It consists of 21 items of different life domains including drugs, drug treatment, harm reduction, education, and neighborhood

safety. The 20 item HRQOLDA was developed as a measure of the effects of drug abuse on physical perception, psychological health, and social functioning, which was based on the bi-axial concept of addiction and an operational definition specific to drug abusers. The former focuses on injection drug users; the latter needs further validation in practice.

Therefore it is critical and timely to develop specific QOL instruments for individuals with a drug dependency. In China, no research on the development of a specific QOL instrument for individuals with a drug dependency has been reported to date. In this paper, we report the procedures, results and applications of the Quality Of Life for Individuals with drug dependence (QOL-DA), an instrument we developed to meet this important need.

2. Methods

Based on WHO's QOL concept and special issues related to drug addiction, this scale, Quality Of Life for Individuals with Drug Addiction/Dependence (QOL-DA), was designed to measure HRQOL for those with a drug (mainly heroin) addiction dependency so that it could be used to evaluate the different methods or modes of detoxification in terms of QOL. According to WHO, quality of life is defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It consists of broad six domains of physical, psychological, level of independence, social relationship, environment and spirituality/religion/personal beliefs (WHO, 1995; The WHOQOL Group, 1998).

Considering that those with drug addiction have been recognized as patients with health issues by many researchers, in this paper, QOL is mentioned interchangeably with HRQOL, which is the subjective perception of the impact of health status on physical, psychological, and social functioning and well-being, and narrowed to four domains excluding environment and spirituality/religion/ personal belief. Although we are predominantly concerned with HRQOL, we use the briefer and more common abbreviation, QOL, as a synonym for HRQOL.

Theoretically, our conceptual framework is that the scale consists of 4 domains: physical function (body motion, sensory perception, appetite, sexuality, sleep and energy), psychological function (emotion, cognition, stress resistance and self-esteem), social function (social support and adaptation, family and career) and withdrawal symptoms and side effects.

Each item in it is graded by a 5-level Likert standard. The scale is self-administered and is brief and feasible with high validity, reliability and responsiveness.

2.1. Establishment of the scale

2.1.1. Item selection and primary screening—The research team was composed of physicians, nurses, medical educators and staff members from drug abuse research centers. Two working groups, the nominal group and the focus group, were organized. The focus group was composed of 3 physicians for individuals with drug dependence and 8 researchers (3 in QOL/medical statistics, 1 in epidemiology, 2 in sociology, 2 in psychology), while the nominal group contained 6 physicians, 2 nurses, 2 medical educator/managers for drug dependence, and 7 researchers (2 in QOL/medical statistics, 1 epidemiologist, 2 sociologists, and 2 psychologists). A programmed decision method (Wan et al., 2008a,b) including nominal group and focus group discussions, in-depth interviews, pilot tests, and pre-tests was used in item selection. After reviewing some well-known QOL scales such as WHOQOL (WHO, 1995), SF-36 (Ware and Gandek, 1998), FACT-G (Winstead and Schultz, 1997) and remaining cognizant of Chinese cultural elements, the nominal group

proposed 102 items as an item pool. The members of the focus group assessed the value of each item by ranking it independently according to the importance of each item using a 0–100 score system (0 = extremely unimportant and 100 = extremely important), and then discussing those rankings together. After this procedure, the 5–6 lowest ranked items were eliminated each time. Repeating this process resulted in a pool of 83 items. Then a pilot survey of 10 individuals with a drug dependency in Kunming Municipal Mandatory Detoxification and Rehabilitation Center was conducted to evaluate the meaning and clarity of each item. As a result, the less comprehensible items or those with lower importance scores were modified or deleted and 65 items remained to form a primary scale (version 1).

All items had the same format, such as: “Is your sexuality or interest in the opposite sex lowered?” The choices could be: 1 – not at all, 2 – a little, 3 – moderately, 4 – very much, and 5 – extremely.

The positively stated items are directly scored from 1 to 5, while the negatively stated items were reverse-scored. The total score for each domain and the overall scale was calculated by summing item scores for each domain and the overall scale.

2.1.2. Pre-test and item re-screening—Version 1 of the scale was administered to 158 individuals with a drug dependency at Kunming Municipal Mandatory Detoxification and Rehabilitation Center, Yunnan Province, China, with ethical approval by Kunming Medical University. On the first day of their enrollment into the center, these study participants were asked to fill out the questionnaire during their interview with an investigator (a well-trained medical student). The investigators explained the trial and the scale to them and obtained informed consent from those who agreed to participate in the study and met the inclusion criteria (literate and no physical or mental limits for writing). At the same time, each subject was required to score the importance of each item in the questionnaire employing a 0–100 point system (0 = extremely not important and 100 = extremely important).

Upon completion of the interview, all data were entered into computer and items cores were calculated (see Table 1). After the calculation of the item scores, the following statistical procedures (Wan et al., 1995) were used to re-screen the items employing SPSS:

- A. Variation procedure. The standard deviation (SD) of each item was calculated, and the items with smaller SDs (<1.25) were deleted.
- B. Importance scoring procedure. The mean score of each item was calculated, and the items with lower scores (<50) were deleted.
- C. Correlation procedure. The Pearson's correlation coefficient between each item and its relevant domain was calculated, and the items with smaller correlation coefficients ($r < 0.40$) were deleted.
- D. Regression procedure. A stepwise regression was conducted with total QOL score as a dependent variable and items scores as independent variables to select the items with statistical significance. The items not entering the regression equation were deleted.
- E. Factor analysis procedure. A factor analysis was performed, and the items which had small factor loadings (<0.40) on all factors or approximately equal factor loadings on two or more factors (indicating no specificity) were deleted.

Given the 65 item selection pool, 50, 44, 53, 43 and 48 items were selected by procedure A–E respectively (see Table 1). To facilitate the selection of the final item pool, the following rules were applied: (1) Inclusion of those items selected by at least three procedures; (2) Inclusion of those items selected by only one or two of the above procedures but with some

other favorable results, such as the contribution to the cumulative variance in factor analysis. These additional rules produced a 40 item scale. These items were re-ordered to form the final scale (version 2.0, see Appendix A) with the scoring method being the same above, in which the physical, psychological, social and symptom/toxicity domains contained 9, 9, 11 and 11 items, respectively.

2.2. Evaluating the scale

The 40-item final scale of QOL-DA (V2.0) was given to 212 drug-dependent individuals. Each respondent answered the questionnaire at the time of admission to the detoxification and rehabilitation center above. To calculate the test–retest reliability, each subject was measured again on the second day following their enrollment into the center. Additionally, 180 of the patients were administered the scale on the day that marked their two weeks detoxification to evaluate their responsiveness to change.

Based on these data, the validity, reliability and responsiveness of the scale were evaluated. Construct validity was evaluated by calculating the Pearson correlation coefficient, r , among items and domains as well as by factor analysis. Internal consistency reliability was evaluated using Cronbach's alpha coefficient for each domain, and test–retest reliability through calculating the Pearson correlation coefficient between the first and second assessment. Responsiveness was assessed through comparing the mean difference between the first and third assessment (first pre-treatment and post-treatment) with effect size, SRM (standardized response mean) (Husted et al., 2000; Terwee et al., 2003). All statistical analyses were performed using SPSS on a Windows XP platform.

2.3. Comparisons of 3 instruments

To compare our specific instrument with other generic instruments frequently used, another 54 subjects with heroin dependence at the center described above were sampled randomly and filled out the 3 instruments: our QOL-DA, Chinese version of SF-36 and Chinese version of WHOQOL-100, during their detoxification period. The procedure was similar to that stated above, but only two measurements were performed at the beginning of detoxification and after two weeks of their detoxification.

The whole process of developing the scale is outlined in Fig. 1.

3. Results

Table 2 presents details about the socio-demographic characteristics and drug usage history of the study samples, with a mean age of 26.7 (± 5.3) and an age range of 16.4–45.8 years old for sample 1, and a mean age of 24.8 (± 4.0) and an age range of 16.4–33.9 years old for sample 2.

3.1. Construct validity

Correlation analyses revealed strong correlations between items and their own domains (most correlation coefficients were higher than 0.65), but weak correlations between items and other domains (see Table 3). For example, correlation coefficients between PH (physical domain) and items of I1–I6 and I34, I39, I40 (in bold) were higher than those between PH and other items. Each domain was highly correlated with the total QOL score with $r > 0.85$.

Four factors were selected (initial eigenvalues > 1) by factor analysis, which made a variance contribution of 63.5%. Following a varimax rotation, the conclusion was drawn that the first factor was the symptom/toxicity domain with a variance contribution of 37.9%; the second was the social domain with a variance contribution of 10.1%; the third was the

psychological domain with variance contributions of 9.0% and the fourth was physical domain with variance contributions of 6.3%.

Overall, the theoretical construct was confirmed by the data analyses, which demonstrated good construct validity.

3.2. Criterion-related validity

We chose the Chinese versions of both the WHOQOL-100 and the SF-36 as the criteria for assessing criterion-related validity because of the lack of an agreed-upon gold standard. For the additional 54 individuals with a drug dependency who completed the QOL-DA, WHOQOL-100, and SF-36, the correlation coefficients for scores among the domains of these instruments are presented in Table 4. It can be seen that the correlations between the same and similar domains are generally higher than those between different and non-similar domains. For example, the coefficient between the physical domain of WHOQOL-100 and QOL-DA (PHD and PH) was 0.72, higher than any other coefficients in this row, e.g., PS (psychological domain) (0.64) and SO (social domain) (0.71). This coefficient matrix confirmed the criterion-related validity to a reasonable degree and also demonstrated the convergent and divergent validity to some extent.

3.3. Known-group validity/clinical validity

It is well known that some clinical indicators and socio-demographic characteristics such as age and gender can affect QOL, especially the physical domain (Wensing et al., 2001; De Maeyer et al., 2010). Thus, the samples were divided into two age groups with the age below 25 (83 cases) in one group and the other age group of at or above 25 (125 cases), and also two gender group (147 male, 65 female). The comparisons of the mean QOL scores of the domains between the two age groups and gender groups were carried out with *t*-tests (Table 5), revealing statistically significance differences for the symptoms/toxicity and social domains for the gender groups, and symptoms/ toxicity, physical domains and the overall score for the age groups.

3.4. Reliability

The reliability of the scale was evaluated through two approaches: test–retest and internal consistency.

The test–retest correlation coefficients of the physical, psychological, social, symptom/toxicity domains and the total QOL were 0.82, 0.64, 0.78, 0.76 and 0.82 respectively. There were no significant differences between the test– retest scores for each domain or the total QOL using paired *t*-tests ($P > 0.20$).

Cronbach's coefficient was calculated resulting in values of 0.87, 0.89, 0.93 and 0.86 for the physical, psychological, social, symptom/toxicity domains, respectively.

3.5. Responsiveness

The paired *t*-tests showed that the score changes between pre- and post-detoxification were statistically significant in each domain and the overall QOL ($P < 0.001$) with higher SRM (standardized response mean). This indicates that the scale is sensitive to changes in QOL issues (see Table 6).

3.6. Comparisons of 3 instruments

The domain scores of the three instruments were calculated and the differences between pre- and post-detoxification were analyzed with paired *t*-tests for the 54 patients in the validation sample (see Table 7).

It can be seen that the QOL-DA reflects the changes in QOL scores with a good degree of sensitivity, with the exclusion of the social domain, while the WHOQOL-100 and the SF-36 failed to reveal any statistically significant changes.

4. Discussion

In this paper, we have discussed the development of a specific QOL (focused on HRQOL) instrument for individuals with a drug dependency based on WHO's definition of QOL (The WHOQOL Group, 1998). Although the physical domain of some generic QOL instruments might cover the items related to symptom/toxicity, it is worthwhile to treat symptom/toxicity as an additional domain to facilitate evaluating the special characteristics of detoxification when the effect of intervention is emphasized.

In general, a practical QOL instrument must be validated with respect to at least three aspects: validity, reliability and responsiveness. By following WHO's definition of QOL (The WHOQOL Group, 1998) and the programmed decision procedures, we developed the QOL-DA for individuals with drug dependency by using focus group discussions, in-depth interviews and pretesting to effectively reduce the number of items in the final version to 40 items from an initial 102 item pool, ensuring good content validity and sound conceptual structure of this instrument. In particular, the item selection was based not only on a qualitative analysis such as interviews with patients, but also on five quantitative statistical procedures, such as patients' importance scores. Perceptions of patients can be determined by their interview responses and item importance scores. Correlational analyses and factor analysis confirmed good construct validity. Correlation coefficients between domain scores of QOL-DA and SF-36, WHOQOL-100 showed the criterion-related validity to a reasonable degree and the convergent and divergent validity to some extent.

Reliability refers to the reproducibility or consistency of scores from one assessment to another. Test–retest reliability (*r*) and internal consistency reliability (Cronbach's α), the most frequently used indicators, were applied in the current study. Our results showed that the test–retest reliability coefficients for QOL-DA domains were greater than 0.70 with the exception of the psychological function (0.64); the internal consistency coefficients of the QOL-DA domains were greater than 0.80. Thus, this instrument has good reliability.

The methods of assessing responsiveness have not been standardized and thus are highly debatable (Terwee et al., 2003). Six indices (effect size, standardized response mean (SRM), responsiveness statistic, paired *t*-test, area under receiver operating characteristic curve or ROC, *F*-statistic) were used in this study to evaluate the responsiveness (Kim et al., 2003). While many researchers have studied the changes in response to interventions of known efficacy (external standards) by traditional methods, Kosinski et al. (2003) used the item response theory (IRT) approach to evaluate responsiveness. In this paper, paired *t*-tests as well as SRM were used to test the changes in QOL scores between pre- and post-detoxification demonstrating the responsiveness, based on the hypothesis that most individuals with drug dependency are expected to be detoxified in two weeks and their average QOL improvements should indicate this. SRM is a good indicator of effect size, with values of 0.20, 0.50 and 0.80 having been proposed to represent small, moderate and large responsiveness effects, respectively (Husted et al., 2000; Terwee et al., 2003). Table 6 shows that there were statistically significant changes in all domains and overall scales with

all SRM higher than 0.80 except for the social domain (0.79). Thus, the instrument demonstrates good responsiveness.

WHOQOL-100 and SF-36 are commonly used as generic QOL instruments for many diseases, including patients with chronic diseases, cancers or drug dependency. But, strictly speaking, they are not suitable for individuals with drug dependency for they lack the items specific to the symptoms and issues of that dependency. It can be seen from the results that the QOL-DA has better validity, reliability, especially responsiveness than generic instruments such as SF-36 since it captures the specific issues related to drug addiction. However, the sample size of this comparison is not large (54 cases), which may limit the significance of the findings. Additional larger studies are needed to compare them further.

It should be noted that each subject was required to have at least two measurements according to our original design for responsiveness, but some patients (42 cases) were not entered into measurement after two weeks detoxification. This happened most often when the patient went to another department for treatment, or had an unexpected early discharge. This may limit the significance of the findings. Additionally, the sample size of the study is not very large, particularly with respect to the generalizability of the factor analysis (212 cases vs. 40 variables). Correlation analyses were conducted simultaneously to overcome the sample size limitations but additional larger studies are needed to validate the current findings. QOL-DA has been widely put into practice in China since its release, and the results have shown that it is a feasible and sensitive instrument to use. For example, Zhao et al. (2003) used the QOL-DA to compare the quality of life between first-time and relapsing drug dependent patients during their detoxification and the results showed that the quality of life of the first-time patients was higher than that of the recurrent- use patients during detoxification. Zhu et al. (2005) used the instrument to study QOL of 77 heroin dependent subjects and found that those who had experienced multiple detoxifications had lower QOL scores on the overall instrument, and in the PS and ST domains than those undergoing a first-time detoxification, with overall score of 127.47 ± 21.10 for multiple detoxification subjects and 140.17 ± 20.37 for first-time program participants. To study feasibility of using QOL-DA in those with heroin dependency, Guo et al. (2004) used it in the measurement of 698 patients employing confirmatory factor analysis to analyze data. The results showed: a Cronbach's $\alpha = 0.93$, test-retest reliability of 0.84, CFI (0.86), TLI (0.85), χ^2/df (3.54), REMEA (0.06) for the overall scale, correlation coefficients among domains were 0.31–0.66 ($P < 0.01$), correlation coefficients between domain and overall ranged from 0.71 to 0.85 ($P < 0.01$). These research applications again confirmed the feasibility and usefulness of the scale.

It is important to note that the subjects were selected only from a drug rehabilitation center, and that the validation applies only to those dependent on heroin. Therefore, the instrument needs to be further tested in other settings and with other substance use groups.

To sum up, the scale developed can be applied as a specific instrument for measuring the quality of life of individuals with a drug dependency with good validity, reliability, responsiveness. Foreign language versions of QOL-DA can be developed following strict translation and back-translation procedures (Appendix A is just an approximate and not a validated English translation).

Acknowledgments

In carrying out this research project, we have received substantial assistance from staff at Kunming Municipal Mandatory Detoxification and Rehabilitation Center, Yunnan Province, and medical students at School of Public Health, Kunming Medical University. We sincerely appreciate their kind help.

Funding: Supported by the National Natural Science Foundation of China (30360092, 30860248). This work was supported in part by a NIH grant 1 UL1 RR024160-01 when it was completed in the Department of Biostatistics and Computational Biology at the University of Rochester Medical Center.

Ethical approval: By Kunming Medical University.

Appendix A

药物成瘾者生存质量测定量表(QOL-DA V2.0)

各位病友:

首先对您深受吸毒之苦表示深深的同情,同时对您戒毒的决心表示钦佩。作为医生,我们希望尽最大努力使您解除痛苦,当然这也需得到您的积极配合。下面的生存质量测定就是为了从整体上了解您的身体状况,从而方便医生采取适宜的治疗和戒断措施。生存质量测定是目前国际上最流行的新方法。就象护士用温度计不断地测量您的体温一样,医生通过量表不断地测量您的生存质量即可了解您的总体健康状况,希望您支持配合!

请先填写您的一些基本情况,然后仔细阅读每一条目,根据最近一星期内的实际情况或感觉(有无及轻重程度),在5个方格中选择一格,划一个钩“√”。

姓名(或编号): _____ 性别: _____

年龄: _____ 文化程度: _____

职业: _____ 填表日期: _____

	没有	很轻	中等	较重	严重
1. 您感到自己精力下降、活动减慢吗?	1	2	3	4	5
2. 您感到身体某些部位软弱无力吗?	1	2	3	4	5
3. 您感到头昏眼花或晕眩吗?	1	2	3	4	5
4. 您的性欲或对异性的兴趣减退了吗?	1	2	3	4	5
5. 您是否感到记忆力下降?	1	2	3	4	5
6. 您是否感到事事都很费力?	1	2	3	4	5
7. 您感到寂寞孤独吗?	1	2	3	4	5
8. 您感到忧郁苦闷吗?	1	2	3	4	5
9. 您对未来感到失望吗?	1	2	3	4	5
10. 您感到大多数人都不可信任吗?	1	2	3	4	5
11. 您感到自己没有什么价值吗?	1	2	3	4	5
12. 您感到别人不理睬您,不同情您吗?	1	2	3	4	5
13. 您在单位(家里)的地位因吸毒而受影响吗?	1	2	3	4	5
14. 您要依赖某些物质(酒、药品)才感舒服吗?	1	2	3	4	5
15. 您感到缺乏安全感吗?	1	2	3	4	5
16. 您感到不自由吗?	1	2	3	4	5
17. 您感到自己有罪吗?	1	2	3	4	5
18. 您吸毒给亲友带来了巨大痛苦吗?	1	2	3	4	5
19. 您吸毒给家庭经济带来严重困难吗?	1	2	3	4	5
20. 您流眼泪或流鼻涕吗?	1	2	3	4	5
21. 您有腹部或其它部位肌肉痉挛吗?	1	2	3	4	5

22. 您有小腿抽筋吗？	1	2	3	4	5
23. 您有一阵阵的发冷或发热吗？	1	2	3	4	5
24. 您有恶心或呕吐吗？	1	2	3	4	5
25. 您有腹泻吗？	1	2	3	4	5
26. 您有胃痉挛性疼痛吗？	1	2	3	4	5
27. 您出汗吗？	1	2	3	4	5
28. 您发抖吗？	1	2	3	4	5
29. 您呼吸困难吗？	1	2	3	4	5
30. 您起鸡皮疙瘩吗？	1	2	3	4	5
	根本不容易	有点容易	容易	很容易	极容易
31. 您容易烦恼吗？	1	2	3	4	5
32. 您容易激动吗？	1	2	3	4	5
33. 您与别人交流容易吗？	1	2	3	4	5
	根本不能	有点能	中等	很能	极能
34. 您能集中注意力吗？	1	2	3	4	5
35. 您能适应周围环境吗？	1	2	3	4	5
36. 您能得到家庭的帮助吗？	1	2	3	4	5
37. 您能得到朋友的帮助吗？	1	2	3	4	5
	很差	差	不好也不差	好	很好
38. 您觉得您的家庭好吗？	1	2	3	4	5
39. 您食欲怎么样？	1	2	3	4	5
40. 您睡眠怎么样？	1	2	3	4	5

Quality of Life Scale for Individuals with drug dependence (QOL-DA V2.0)

INSTRUCTION: We are very sympathetic for your suffers from drug addiction and also appreciate your willing of abstinence. As a doctor, we hope to do our best to help you. Therefore, we need to measure your quality of life and health at intervals just like nurses take patients' temperatures everyday. This questionnaire is about some of your everyday things, which will help us to get more details about your present situation. Please give answers to all questions by circling the numbers that best apply to you. The information that you provide will remain strictly confidential.

Name (or register No.): _____ Gender: _____

Age: _____ Education: _____

Occupation: _____ Date: _____

Not A Very

	at all	little	Moderately	much	Extremely
1. Do you feel lack of energy?	1	2	3	4	5
2. Do you feel weak in some parts of your body?	1	2	3	4	5
3. Do you feel lightheaded or dizzy?	1	2	3	4	5
4. Has your sexual function been weakened?	1	2	3	4	5
5. Do you feel that your memory has been declined?	1	2	3	4	5
6. Do you have difficulty in doing things?	1	2	3	4	5
7. Do you feel lonely?	1	2	3	4	5
8. Do you feel depressed?	1	2	3	4	5
9. Do you feel hopeless for the future?	1	2	3	4	5
10. Do you distrust most people?	1	2	3	4	5
11. Do you feel yourself valueless?	1	2	3	4	5
12. Do you feel that no one sympathizes with you?	1	2	3	4	5
13. Does your drug-taking affect your position in your work place or at home?	1	2	3	4	5
14. Are you dependent on medical substances to make yourself feel comfortable?	1	2	3	4	5
15. Do you feel lack of safety?	1	2	3	4	5
16. Do you feel lack of freedom?	1	2	3	4	5
17. Do you feel guilty?	1	2	3	4	5
18. Does your drug-taking make your relatives or your friends bitter?	1	2	3	4	5
19. Does your drug-taking cause financial problems in your family?	1	2	3	4	5
20. Do you often tear or snivel?	1	2	3	4	5
21. Have you had convulsions on your abdomen or other parts of your body?	1	2	3	4	5
22. Have you had limb spasms?	1	2	3	4	5
23. Do you feel cold or hot at intervals?	1	2	3	4	5
24. Have you vomited or felt nauseated?	1	2	3	4	5
25. Have you had diarrhea?	1	2	3	4	5
26. Have you felt painful for stomach convulsions?	1	2	3	4	5
27. Do you often sweat?	1	2	3	4	5
28. Have you shuddered?	1	2	3	4	5
29. Have you had short breath?	1	2	3	4	5
30. Have you had pimples in your skin?	1	2	3	4	5
31. Are you easy to become irritable?	1	2	3	4	5
32. Are you easy to become excited?	1	2	3	4	5
33. Are you easy to get along well with others?	1	2	3	4	5
34. Are you able to concentrate?	1	2	3	4	5
35. Are you adaptable to the environment?	1	2	3	4	5
36. Are you able to get help or support from your family?	1	2	3	4	5
37. To what extent can you count on your friends?	1	2	3	4	5
38. Is your family well?	1	2	3	4	5
39. Is your appetite well?	1	2	3	4	5
40. Is your sleep well?	1	2	3	4	5

References

Cox DR, Fitzpatrick R, Fletcher AE. Quality-of-life assessment: can we keep it simple? *Journal of Royal Statistics Series A*. 1992; 155:353–393.

Int J Nurs Stud. Author manuscript; available in PMC 2013 September 23.

- Daeppen JB, Krieg MA, Burnand B, Yersin B. MOS-SF-36 in evaluating health-related quality of life in alcohol-dependent patients. *American Journal of Drug & Alcohol Abuse*. 1998; 24(4):685–694. [PubMed: 9849778]
- da Silva Lima AF, Fleck M, Pechansky F, de Boni R, Sukop P. Psychometric properties of the World Health Organization quality of life instrument (WHOQoL-BREF) in alcoholic males: a pilot study. *Quality of Life Research*. 2005; 14(2):473–478. [PubMed: 15892436]
- De Maeyer J, Vanderplasschen W, Broekaert E. Quality of life among opiate-dependent individuals: a review of the literature. *International Journal of Drug Policy*. 2010; 21:364–380. [PubMed: 20172706]
- Donovan D, Mattson ME, Cisler RA, Longabaugh R, Zweben A. Quality of life as an outcome measure in alcoholism treatment research. *Journal of Studies on Alcohol – Supplement*. 2005; 15:119–139. [PubMed: 16223064]
- Fassino S, Daga GA, Delsedime N, Rogna L, Boggio S. Quality of life and personality disorders in heroin abusers. *Drug & Alcohol Dependence*. 2004; 76(1):73–80. [PubMed: 15380291]
- Foster JH, Peters TJ, Marshall EJ. Quality of life measures and outcome in alcohol-dependent men and women. *Alcohol*. 2000; 22(1):45–52. [PubMed: 11109027]
- Guo HJ, Cai TS, Deng YL, Liu J, Zhang J, Cao Y. Feasibility of using QOL-DA in heroin addicts after 3-month discontinuation. *Chinese Journal of Clinical Psychology*. 2004; 12(4):340–341. 344. (in Chinese).
- Hubley AM, Russell LB, Palepu A. Injection drug use quality of life scale (IDUQOL): a validation study. *Health and Quality of Life Outcomes*. 2005; 3:43–52. [PubMed: 16029504]
- Hubley AM, Russell LB, Palepu A. Injection drug user quality of life scale (IDUQOL): findings from a content validation study. *Health and Quality of Life Outcomes*. 2007; 5:46–58. [PubMed: 17663783]
- Husted JA, Cook RJ, Farewell VT, Gladman DD. Methods for assessing responsiveness: a critical review and recommendations. *Journal of Clinical Epidemiology*. 2000; 53:459–468. [PubMed: 10812317]
- Kim S, Hays RD, Birbeck GL. Responsiveness of the quality of life in epilepsy inventory (QOLIE-89) in an antiepileptic drug trial. *Quality of Life Research*. 2003; 12(2):147–155. [PubMed: 12639061]
- Kosinski M, Bjorner JB, Ware JE. The responsiveness of headache impact scales scored using ‘classical’ and ‘modern’ psychometric methods: a re-analysis of three clinical trials. *Quality of Life Research*. 2003; 12(8):903–912. [PubMed: 14651411]
- Lozano Rojas OM, Rojas Tejada AJ, Pérez Meléndez C. Development of a specific health-related quality of life test in drug abusers using the Rasch rating scale model. *European Addiction Research*. 2009; 15(2):63–70. [PubMed: 19142005]
- Lu L, Fang YX, Wang X. Drug abuse in China: past, present and future. *Cellular and Molecular Neurobiology*. 2008; 28:479–490. [PubMed: 17990098]
- Puigdollers E, Domingo-Salvany A, Brugal MT, Torrens M, Alvaros J, Castillo C, Magri N, Martin S, Vazquez JM. Characteristics of heroin addicts entering methadone maintenance treatment: quality of life and gender. *Substance Use & Misuse*. 2004; 39(9):1353–1368. [PubMed: 15462234]
- Revicki DA, Osoba D, Fairclough, Barofsky I, Berzon R, Leidy NK, Rothman M. Recommendations on health-related quality of life research to support labeling and promotional claims in the United States. *Quality of Life Research*. 2000; 9:887–900. [PubMed: 11284208]
- Terwee CB, Dekker FW, Wiersinga WM. On assessing responsiveness of health-related quality of life instruments: guidelines for instrument evaluation. *Quality of Life Research*. 2003; 12(4):349–362. [PubMed: 12797708]
- The WHOQOL Group. The World Health Organization Quality of Life assessment (WHOQOL): development and psychometric properties. *Social Science and Medicine*. 1998; 46(12):1569–1585. [PubMed: 9672396]
- Wan CH, Shi ML, Fang JQ. Methods of index screening for the establishment of instrument of quality of life. *Journal of Mathematical Medicine*. 1995; 8(Suppl):5–8. (in Chinese).
- Wan C, Yang Z, Meng Q, Feng CY, Wang HY, Tang XL. Development and validation of the general module of the system of quality of life instruments for cancer patients (QLICP-GM). *International Journal of Cancer*. 2008a; 122(1):190–196.

- Wan C, Lu Y, Tang W, Tu X, Zhang CZ, Li GF, Shen LD, Luo JH. Development and validation of the system of quality of life instruments for cancer patients: lung cancer (QLICP-LU). *Lung Cancer*. 2008b; 60(1):105–112. [PubMed: 17964686]
- Ware JE, Gandek B. Overview of the SF-36 health survey and the international quality of life assessment (IQOLA) project. *Journal of Clinical Epidemiology*. 1998; 51(11):903–912. [PubMed: 9817107]
- Wensing M, Vingerhoets E, Grol R. Functional status, health problems, age and comorbidity in primary care patients. *Quality of Life Research*. 2001; 10:141–148. [PubMed: 11642684]
- Winstead FP, Schultz A. Psychometric assessment of the functional assessment of cancer therapy scale (FACT-G) in a rural sample. *Cancer*. 1997; 79(12):2446–2452. [PubMed: 9191537]
- WHO, Division of Mental Health. Field Trial WHOQOL-100: The 100 Questions with Response Scales. WHO; Geneva: 1995.
- Zhao R, Wei L, Zhang Y. Comparison of quality of life in drug addict for the first time and relapsing addicts during detoxication. *Chinese Journal of Clinical Rehabilitation*. 2003; 7(23):3697. (in Chinese).
- Zhu WJ, Huang E, Chen XB, Chen JH, Wu YP, Yan QL, Zhang CJ. An analysis of the quality of life and related factors in heroin addicts enforcing detoxification. *Chinese Journal of Behavioral Medical Science*. 2005; 14(4):327–329. (in Chinese).
- Zubaran C, Foresti K. Quality of life and substance use: concepts and recent tendencies. *Current Opinion in Psychiatry*. 2009; 22(3):281–286. [PubMed: 19378380]

What is already known about the topic?

- Drug abuse has become a serious social and health problem worldwide.
- Doctors and health care providers can learn more about the health status of drug users and also treatment effects through measurement of quality of life, but few specific QOL instruments are available, especially in China.

What this paper adds

- This is the first study to develop a specific self-administered quality of life scale for drug addiction/ dependence (QOL-DA) and compare it with the SF-36 and the WHOQOL-100 in China.
- The programmed decision method was used to develop a new scale to ensure good psychometric properties, including multiple nominal group and focus group discussions, in-depth interview, pilot tests, pre-tests and the statistical procedures.
- SRM (standardized response mean) was used to reflect responsiveness companying with paired t tests, and both Pearson r and Cronbach's coefficient were used to assess reliability.

Fig. 1.
Summary of development of QOL-DA for patients with drug dependence.

Table 1

Item scores and item selection results by 5 methods.

Items (brief states)	Item score		Importance score	Item selections				
	Mean	SD		A	B	C	D	E
1. Appetite good?	2.76	1.27	60	a	a	a	a	a
2. Sleep well?	2.47	1.30	64	a	a	a	a	a
3. Lack of energy?	2.42	1.08	55	a	a	a	a	a
4. Weak in some parts of your body?	2.30	1.13	55	a	a	a	a	a
5. Aches and pains?	2.49	1.24	56	a	a	a	a	a
6. Weight loss?	2.89	1.20	51	a	a	a	a	a
7. Feel lightheaded or dizzy?	2.79	1.29	53	a	a	a	a	a
8. Sexual function weakened?	3.04	1.31	51	a	a	a	a	a
9. Able to concentrate?	3.13	1.13	50	a	a	a	a	a
10. Hearing loss?	3.42	1.22	49	a	a	a	a	a
11. Vision decreased?	3.41	1.19	48	a	a	a	a	a
12. Memory declined?	2.87	1.27	54	a	a	a	a	a
13. Hard to do things?	2.72	1.24	54	a	a	a	a	a
14. Easily upset?	2.96	1.25	52	a	a	a	a	a
15. Easily excited?	3.13	1.25	50	a	a	a	a	a
16. Feel lonely?	2.68	1.32	52	a	a	a	a	a
17. Feel depressed?	2.82	1.32	53	a	a	a	a	a
18. Feel afraid without reasons?	3.18	1.39	46	a	a	a	a	a
19. Feel hopeless for the future?	3.21	1.35	53	a	a	a	a	a
20. Distrust most people?	3.08	1.26	51	a	a	a	a	a
21. Want to die?	3.22	1.47	44	a	a	a	a	a
22. Feel yourself valueless?	3.11	1.29	51	a	a	a	a	a
23. Feel no one sympathizes with you?	3.11	1.29	47	a	a	a	a	a
24. Feel others are unfriendly	3.22	1.25	49	a	a	a	a	a
25. Feel someone oversee you?	3.35	1.20	47	a	a	a	a	a
26. Be not interested in anything?	3.02	1.31	49	a	a	a	a	a
27. Often cry or snivel?	2.68	1.32	50	a	a	a	a	a

Items (brief states)	Item score		Importance score		Item selections					
	Mean	SD			A	B	C	D	E	F
28. Stomach cramp?	2.83	1.42	51		a	a	a	a	a	a
29. Limb spasms?	2.92	1.38	51		a	a	a	a	a	a
30. Feel cold or hot at intervals?	2.51	1.25	51		a	a	a	a	a	a
31. Feel like vomiting or nauseated?	2.96	1.42	50		a	a	a	a	a	a
32. Diarrhea?	3.00	1.41	49		a		a	a	a	a
33. Painful stomach cramps?	2.82	1.40	51		a	a	a		a	a
34. Often sweat?	2.58	1.29	52		a	a	a		a	a
35. Feel Shuddering?	2.73	1.35	49		a		a	a	a	a
36. Pimples in your skin?	2.59	1.33	50		a	a	a	a	a	a
37. Congested throat?	3.09	1.31	48		a		a		a	
38. Short breath?	3.02	1.38	52		a	a	a	a	a	a
39. Heart disorder?	2.95	1.35	48		a		a		a	
40. Numbness or tingling	3.16	1.30	49		a		a		a	
41. Easy to get along well with others?	3.34	1.33	49		a		a	a		a
42. Lack of freedom?	3.25	1.25	54		a	a	a	a		a
43. Never feel close with others?	3.39	1.26	48		a		a	a		
44. Feel guilty?	2.82	1.35	53		a	a		a	a	a
45. Drug-taking makes relatives/friends bitter?	1.92	1.22	65			a		a	a	a
46. Drug-taking causes financial problems in family?	1.80	1.18	65			a	a	a		a
47. Having a capacity for adaptation to the environment?	3.02	1.26	55		a	a	a			a
48. Want to harm others?	4.06	1.23	44					a	a	
49. Want to break things?	4.03	1.19	41						a	
50. Feel restless, distracted	2.85	1.32	46		a		a			
51. Often argue with others?	3.89	1.15	41							
52. Drug-taking affects position (in work or family)?	2.76	1.39	55		a	a		a	a	a
53. Friendship and relationship breakdown?	2.99	1.46	57		a	a		a		
54. Be able to get help/support from family?	3.29	1.50	51		a	a	a		a	a
55. Be able to get help from friends?	3.32	1.45	52		a	a	a	a	a	a
56. Do you feel your family is well?	3.32	1.51	55		a	a		a	a	a
57. Feel Comfortable under help of some drugs?	3.32	1.33	52		a	a		a		a

Items (brief states)	Item score		Importance score		Item selections					
	Mean	SD			A	B	C	D	E	F
58. Be dependent on medical substances?	3.46	1.32	45		a		a	a	a	a
59. Be able to undertake work?	3.50	1.40	49		a		a			a
60. Daily life limits impact you greatly?	3.15	1.24	54				a			
61. Religion affects you greatly?	3.27	1.35	49		a			a		
62. Lack of safety?	3.32	1.36	48		a					
63. Sexual needs are not met?	4.00	1.26	43		a					
64. Dissatisfied with appearance?	3.77	1.38	47		a			a		a
65. Dissatisfied with ability in work and life?	3.42	1.46	50		a		a			a

^aSelected # A: variation procedure, B: importance scoring procedure, C: correlation procedure, D: regression procedure, E: factor analysis procedure, and F: final selection.

Table 2

Socio-demographic characteristics and drug addiction history of the samples.

Characteristics	Sample 1 (<i>n</i> = 212)		Sample 2 (<i>n</i> = 54)	
	<i>N</i>	%	<i>N</i>	%
Gender				
Male	147	69.3	32	59.3
Female	65	30.7	22	40.7
Ethnicity				
Han	193	91.0	45	83.3
Others	19	9.0	9	16.7
Age (years)				
<20	16	7.5	8	14.8
20–34	183	86.3	46	85.2
35	13	6.2	0.0	0.0
Occupation				
Worker	39	18.4	11	20.4
Driver	26	12.3	10	18.5
Unemployed	108	50.9	25	46.3
Others	39	18.4	8	14.8
Marital status				
Unmarried	117	55.2	35	64.8
Other (e.g. married)	95	44.8	19	35.2
Education				
Primary school	35	16.5	2	3.7
High school	132	62.3	40	74.1
College	45	21.2	12	22.2
Ways of drug-taking				
Intravenous use	153	72.2	31	57.4
Other (e.g. Sniffer)	59	27.8	23	42.8
Frequency of drug-taking per day, $\bar{x} \pm s$ (min–max)	3.2 $\pm$ 1.7 (1–13)		2.8 $\pm$ 1.9 (1–10)	
Age at first heroin use, $\bar{x} \pm s$ (min–max)	24.6 $\pm$ 5.5 (13.3–45.4)		23.3 $\pm$ 4.1 (13.8–33.3)	
Duration (days) ^a , $\bar{x} \pm s$ (min–max)	772 $\pm$ 742 (31–4535)		567 $\pm$ 564 (61–2435)	

^aDuration between first heroin use and this investigation.

Table 3

Correlation coefficients among items and domains of QOL-DA ($n = 212$).

Items	PH	PS	SO	ST	TO	Items	PH	PS	SO	ST	TO
I1	0.66	0.26	0.52	0.25	0.48	I19	0.61	0.47	0.76	0.42	0.66
I2	0.65	0.41	0.51	0.38	0.55	I20	0.65	0.46	0.75	0.45	0.67
I3	0.72	0.44	0.63	0.45	0.64	I21	0.63	0.56	0.75	0.53	0.72
I4	0.73	0.39	0.65	0.44	0.64	I22	0.63	0.53	0.83	0.48	0.72
I5	0.73	0.48	0.53	0.38	0.60	I23	0.52	0.44	0.79	0.46	0.66
I6	0.67	0.46	0.45	0.35	0.54	I24	0.50	0.35	0.69	0.35	0.56
I34	0.73	0.52	0.50	0.41	0.61	I25	0.48	0.43	0.69	0.42	0.59
I39	0.74	0.54	0.52	0.50	0.65	I26	0.57	0.52	0.76	0.48	0.68
I40	0.70	0.62	0.57	0.63	0.72	I27	0.62	0.59	0.83	0.53	0.75
I7	0.65	0.76	0.58	0.60	0.74	I28	0.61	0.52	0.78	0.52	0.71
I8	0.54	0.79	0.52	0.57	0.69	I29	0.58	0.54	0.76	0.60	0.73
I9	0.57	0.78	0.47	0.59	0.68	I13	0.45	0.47	0.49	0.68	0.61
I10	0.48	0.79	0.46	0.54	0.64	I14	0.43	0.49	0.48	0.68	0.60
I11	0.43	0.68	0.51	0.45	0.59	I15	0.33	0.50	0.29	0.61	0.49
I12	0.44	0.74	0.47	0.54	0.62	I17	0.33	0.52	0.30	0.57	0.49
I16	0.43	0.73	0.49	0.54	0.63	I18	0.41	0.55	0.43	0.69	0.60
I30	0.42	0.70	0.45	0.55	0.61	I32	0.40	0.56	0.42	0.61	0.57
I31	0.30	0.58	0.29	0.51	0.48	I33	0.33	0.45	0.41	0.73	0.56
						I35	0.34	0.40	0.35	0.72	0.53
						I36	0.37	0.39	0.36	0.63	0.50
						I37	0.42	0.52	0.49	0.64	0.60
						I38	0.47	0.55	0.48	0.62	0.61

PH: physical domain, PS: psychological domain, SO: social domain, ST: Symptoms/toxicity domain, TO: Total score.

* All coefficients are significant, $P < 0.001$.

Table 4Correlation coefficients of scores among domains of three instruments ($n = 54$).

Instruments/domains	QOL-DA domains				
	PH	PS	SO	ST	TO
WHOQOL-100					
Physical domain (PHD)	0.72	0.64	0.71	0.64	0.72
Psychological domain (PSD)	0.75	0.65	0.71	0.64	0.73
Level of independence domain (LID)	0.81	0.62	0.80	0.59	0.75
Social relationship domain (SRD)	0.56	0.49	0.57	0.49	0.56
Environment domain (EVD)	0.57	0.52	0.54	0.50	0.57
Spirituality/religion/personal belief domain (SRPD)	0.37	0.37	0.36	0.33	0.38
SF-36					
Physical functioning (PF)	0.48	0.30	0.49	0.25	0.41
Role-physical (RP)	0.50	0.41	0.56	0.28	0.47
Bodily pain (BP)	0.43	0.37	0.50	0.39	0.45
General health (GH)	0.54	0.51	0.54	0.53	0.56
Vitality (VT)	0.55	0.40	0.56	0.35	0.50
Social functioning (SF)	0.49	0.37	0.45	0.40	0.45
Role-emotional (RE)	0.49	0.44	0.54	0.33	0.48
Mental health (MH)	0.67	0.65	0.67	0.67	0.71

PH: physical domain, PS: psychological domain, SO: social domain, ST: Symptoms/toxicity domain, TO: Total score.

* All have statistical significance ($P < 0.05$).

Table 5

Comparison of mean scores of domains of QOL-DA among gender and age groups.

Domains	Gender groups (x ± s)			Age groups (x ± s)		
	Male (n = 147)	Female (n = 65)	t	<25 (n = 83)	25 (n = 125)	t
Physical (PH)	24.63 ± 7.74	24.20 ± 7.84	0.33	25.33 ± 8.06	28.13 ± 9.72	2.26*
Psychological (PS)	27.45 ± 8.46	25.91 ± 8.62	1.08	29.10 ± 9.29	30.13 ± 9.51	0.78
Symptoms/toxicity (ST)	31.93 ± 11.18	28.22 ± 11.41	1.97*	31.74 ± 11.54	35.92 ± 12.38	2.48*
Social (SO)	33.86 ± 9.35	30.45 ± 9.97	2.13*	33.78 ± 10.28	35.64 ± 9.92	1.30
Overall (TO)	117.87 ± 31.43	108.78 ± 33.67	1.69	119.94 ± 33.95	129.82 ± 37.94	1.97*

* $P < 0.05$.

Table 6

Responsiveness to change of QOL-DA scores before and after detoxification ($n = 180$).

Domains	Pre-detoxification		Post-detoxification		Differences		t^*	SRM
	Mean	SD	Mean	SD	Mean	SD		
Physical (PH)	24.85	7.70	38.16	6.76	-13.31	9.14	-16.09	1.46
Psychological (PS)	27.34	8.63	36.73	7.05	-9.39	10.36	-10.00	0.91
Symptoms/toxicity (ST)	30.63	11.30	47.73	8.22	-17.10	12.18	-15.50	1.40
Social (SO)	32.70	10.21	41.99	8.38	-9.30	11.74	-8.75	0.79
Overall (TO)	115.52	33.51	164.61	26.12	-49.09	37.36	-14.51	1.31

* All $P < 0.001$.

QOL differences between pre-detoxification and post-detoxification of individuals with drug dependence measured by three instruments ($n = 54$).

Table 7

Instruments/domains	Pre-detoxification		Post-detoxification		Differences		<i>t</i>	<i>P</i>	SRM
	Mean	SD	Mean	SD	Mean	SD			
QOL-DA									
PH	29.24	9.94	34.11	7.70	-4.87	10.55	-3.39	0.001	0.46
PS	29.44	9.83	32.85	8.34	-3.41	10.70	-2.34	0.023	0.32
ST	37.72	12.37	42.26	11.78	-4.54	14.24	-2.34	0.023	0.32
SO	36.44	10.72	38.78	8.50	-2.33	11.40	-1.50	0.138	0.20
Overall	132.85	40.33	148.00	32.79	-15.15	42.45	-2.62	0.011	0.36
WHOQOL-100									
PHD	53.67	19.03	56.37	17.63	-2.70	21.04	-0.94	0.350	0.13
PSD	53.08	14.03	55.60	13.45	-2.52	12.81	-1.45	0.154	0.20
LID	61.75	17.18	62.33	11.05	-0.58	18.02	-0.24	0.814	0.03
SRD	53.28	16.74	56.25	12.61	-2.97	15.45	-1.41	0.164	0.19
EVD	52.85	14.01	53.69	11.45	-0.84	13.48	-0.46	0.649	0.06
SRPD	37.27	20.35	42.59	15.07	-5.32	20.04	-1.95	0.056	0.27
SF-36									
PF	69.63	25.29	72.59	22.23	-2.96	23.92	-0.91	0.367	0.12
RP	35.19	41.64	41.67	42.06	-6.48	37.36	-1.27	0.208	0.17
BP	60.11	27.39	58.76	28.23	1.35	27.68	0.36	0.721	0.05
GH	51.30	16.74	52.69	15.65	-1.39	19.12	-0.53	0.596	0.07
VT	51.94	18.72	49.44	19.20	2.50	18.85	0.97	0.334	0.13
SF	62.35	23.69	59.47	26.18	2.88	28.24	0.75	0.457	0.10
RE	32.72	38.03	33.95	40.69	-1.23	37.74	-0.24	0.811	0.03
MH	50.00	14.96	49.33	13.73	0.67	14.64	0.33	0.739	0.05

For QOL-DA, PH: physical domain, PS: psychological domain, SO: social domain, ST: symptoms/toxicity domain, and TO: total score.

For WHOQOL-100, PHD: physical domain, PSD: psychological domain, LID: level of independence domain, SRD: social relationship domain, EVD: environment domain, and SRPD: spirituality/religion/personal belief domain.

For SF-36, PF: physical function, RP: role-physical, BP: bodily pain, GH: general health, VT: vitality, SF: social function, RE: role-emotional, and MH: mental-health.