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Quality of life in methadone maintenance treated patients in Long An, a southern province of Vietnam

Bui Thi Tu Quyen[1] iD **, Linh Thuy Nguyen[1]** iD **, Vo Thi Viet Phuong[2] and Le Tu Hoang[1]**

Abstract

This cross-sectional study was conducted to identify the quality of life (QoL) and its related factors in methadone maintenance treatment (MMT) patients at four health facilities in Long An province, Vietnam in 2019. We interviewed 373 MMT patients using the WHOQOL-BREF measurement questionnaire and used their health records to collect some other data. The findings showed that the patients had a mean QoL score of 66.1 points. Factors associated with a higher QoL score included having employment, receiving support from relatives, and having health insurance. Therefore, it is recommended that patients should be assisted to participate in health insurance and supported by their relatives.

Introduction

Drug use leads to various consequences related to users' health, household economy, and family relationships, in addition to social insecurity and the increase in crime rates. According to the UNODC (United Nations Office on Drugs and Crime, 2019), there were 53 million drug users worldwide, up to 35 million of whom suffered from disorders related to drug use and therefore required treatment. About 585,000 died from drug use, and two thirds of these deaths were attributed to the use of opioids. Among 11 million drug users in 2017, 1.4 million lived with HIV, and 5.6 million were infected with Hepatitis C (United Nations Office on Drugs and Crime, 2019).

Methadone maintenance treatment (MMT) is a harm reduction program for people with opioid dependence, involving the use of methadone as a synthetic agent in blocking brain receptors affected by heroin and other opiates. It has been proven to be an effective therapy for heroin abuse because it helps reduce heroin use and criminal activity while increasing the protection against HIV infection. In Vietnam, MMT was first piloted in Hai Phong province in 2008. After initial trials, MMT clinics were established by the Vietnamese government (Nguyen et al., 2012). The MMT program has been rapidly scaled up in Vietnam, and as of March 2017, Vietnam had 280 clinics in 63 cities and provinces, providing treatment for 51,318 outpatients.

Quality of life (QoL) is considered as a valuable indicator for assessing the effectiveness of MMT and therefore has been used by many authors (Karow et al., 2011; Maremmani et al., 2007; Padaiga et al., 2007; Torrens et al., 1999; Winklbaur et al., 2008). The QoL of patients enrolling in MMT programs improved after a certain period of time (Chou et al., 2013). In Vietnam, some studies indicated an increase in the QoL score among MMT patients (Nguyen et al., 2017; Tran, 2012; Tran et al., 2012). For instance, a study of 241 patients in Tuyen Quang province conducted by Nguyen et al. (2017) observed good health-related quality of life (the mean score was 0.88 ± 0.20). Previous studies pointed out that patients' QoL was negatively associated with their age, presence of comorbidities, and drug use (Smith and Larson, 2003). Assessing the QoL of MMT patients and its related

[1]Hanoi University of Public Health, Vietnam
[2]Long An Centers for Disease Control and Prevention, Vietnam

Corresponding author:
Linh Thuy Nguyen, Department of Epidemiology, Hanoi University of Public Health, 1A Duc Thang Street, Duc Thang Ward, North Tu Liem District, Hanoi 100000, Vietnam.
Email: ntl@huph.edu.vn

factors is expected to inform adjustments to MMT programs, thereby improving their effectiveness.

Therefore, to examine the impact of MMT on the lives of outpatients at four MMT facilities in Long An province, Vietnam, we conducted this study to identify the QoL and its related factors using a culturally appropriate QoL instrument for drug addicts.

Methods

Study design

This cross-sectional study was conducted from December 2018 to November 2019.

Study settings and participants

Located in the Southern Key Economic Region of Vietnam, Long An province is a gateway connecting Ho Chi Minh City to 12 southwestern provinces in the Mekong Delta. Methadone treatment is only provided at four main clinics in Tan An city, Can Giuoc, Ben Luc, and Duc Hoa districts. The study recruited patients aged ≥18 years participating in methadone maintenance treatment at these clinics. However, it excluded patients who were from other clinics but temporarily treated at any of the four selected health facilities, did not agree to join the study, and/or not allow the researchers to use their health records.

Sampling

The sample size was calculated based on this formula: $n = z_{1-\alpha/2}^2 \ x \sigma^2 / d^2$

Where: z: statistic for a level of confidence (for a significance level of 95%, z value is 1.96); σ: standard deviance of QoL (a σ of 11.4 was selected from a study conducted in Nghe An province using WHOQOL-BREF instrument (Duyen, 2016); d: precision (d had a value of 1.3, which was chosen to produce good precision and a smaller error of estimate). With these values and a non-response rate of 10%, the anticipated sample size was calculated to be 325 patients.

As of June 2019, 375 out of 472 MMT patients had been participating in a period of methadone maintenance treatment at the Department of HIV/AIDS prevention—Long An center for disease control and prevention. Therefore, we decided to collect data from these patients. The final sample size of this study included 373 participants.

Instrument design and data collection

In order to identify QoL score and its related factors, the indicators were primarily collected using two types of questionnaire: (1) the World Health Organization Quality of Life Assessment-Brief version (WHOQOL-BREF) with 26 questions to measure QoL and (2) health records to collect data related to drug use, HIV test result, treatment process, and complications. The WHOQOL-BREF instruments were adapted in 15 countries, including Vietnam. This study also received the WHO's approval for using the WHOQOL-BREF (ID: 278453; "*Form for Requesting permission to use WHO copyrighted material*"). The 26-item questionnaire was divided into four domains, namely physical health (seven questions), mental health (six questions), social relations (three questions), and health satisfaction (one question). The study instrument was pretested in 10 patients to fix words and adjust the conduct of interviews to be suitable with the local context and culture in Long An province. The Cronbach's alpha of 0.871 indicated a good internal consistency.

Measurements

Outcome variable. The main outcome in this analysis was MMT patients' QoL assessed using the WHOQOL-BREF questionnaire consisting of four domains. A 5-point Likert scale, ranging from 1 ("*very bad*") to 5 ("*very good*"), was used to quantify the QoL. Domain scores for the WHOQOL-BREF were calculated by multiplying the mean score of all items in each domain by four. The original domain scores were transformed to a 0 to 100 point scale based on the equation in the published guidelines (The WHOQOL Group, 1998; Yao et al., 2002).

Independent variables. The study considered some main co-variables to identify factors related to the MMT patients' QoL. Characteristics variables included in the analysis were age, education (i.e. less than high school/ below grade 12 vs high school education or above/completed grade 12 and above), marital status (i.e. single/ married/separated, divorced, and widowed), and occupational status (i.e. jobless, unstable jobs, and stable jobs). In this study, individuals with unstable jobs were defined as those who earned unstable income (e.g. free employees) while employees with stable jobs as those having stable or monthly income (e.g. workers, officers, drivers, service officers, and security guards). The analysis also encompassed other variables, namely the number of times having positive drug test results during treatment (i.e. never, 1–2 times, and 3+ times), MMT duration (in months), ownership of health insurance, and health status (e.g. living with HIV or having other chronic diseases).

Data analysis

Data collected from face-to-face interviews and health records were then entered and merged using Epi Data version 3.1 and analyzed using SPSS version 22.0. Certain variables were descriptively analyzed, including

Table 1. Background characteristics of 373 MMT patients, Long An province, 2019.

Characteristics	Total (N = 373)	Having health insurance (n = 178)	Having no health insurance (n = 195)	p Value
Demographics				
Age in years, mean (SD)	33.1 (6.3)	33.9 (6.0)	32.3 (6.5)	0.02
Male, n (%)	367 (98.4)	175 (98.3)	192 (98.5)	0.91
High school education or above, n (%)	129 (34.6)	68 (38.2)	61 (31.3)	0.16
Marital status, n (%)				
Single	153 (41.0)	67 (37.6)	86 (44.1)	0.27
Married	195 (52.3)	96 (53.9)	99 (50.8)	
Separated/divorced/widowed	25 (6.7)	15 (8.4)	10 (5.1)	
Occupational status				
Jobless	29 (7.8)	9 (5.1)	20 (10.3)	<0.001
Unstable jobs	211 (56.6)	81 (45.5)	130 (66.7)	
Stable jobs	133 (35.7)	88 (49.4)	45 (23.1)	
Methadone treatment indicators				
Number of times having positive drug test results during treatment				
None	229 (61.4)	94 (52.8)	135 (69.2)	0.004
1–2 times	112 (30.0)	64 (36.0)	48 (24.6)	
3+ times	32 (8.6)	20 (11.2)	12 (6.2)	
Length of time on MMT (month)				
Median (IQR)	43 (28–51.5)	44.5 (33–54)	41 (26–51)	0.06*
Mean (min–max)	39.9 (4–75)	41.4 (6–75)	38.5 (4–75)	0.09
Co-mobilities				
HIV-positive status	76 (20.4)	54 (30.3)	22.0 (11.3)	<0.001
Other chronic diseases	189 (50.7)	108 (60.7)	81 (41.5)	<0.001

*Mann-Whitney test.

participant's demographic characteristics (i.e. age, gender, occupations, education, marital status, and income), health care and treatment (i.e. drug use and adherence period), and the QoL score.

The Kolmogolov–Smirnov normality test was used to check for the distribution of variables before *T*-test and ANOVA were performed for asymmetrically distributed variables. Variables significantly associated with the primary outcome or dependent variable were included in multivariate models. Some other variables demonstrated by the existing literature to be significantly associated with the primary outcome were also considered in these models although such relationships were not found in our study. Finally, multivariate linear regression was used to examine the associations of certain factors (i.e. gender, age group, education, marital status, occupation, income, ownership of health insurance, drug use, having only Hepatitis, and having chronic diseases) with the QoL of MMT patients.

Ethical considerations

Before the study was conducted, informed consent was obtained from all participants who were then explained by the researchers about any information related to the study, including objectives, significance, and confidentiality.

Ethical clearance was approved by the Ethical Review Board of the Hanoi University of Public Health (approval ID: 216/2019/YTCC-HD3).

Findings

Characteristics of study participants

This study recruited 373 MMT patients, 178 (47.7%) of whom participated in health insurance. The mean age of all patients was 33.1 years (SD: 6.3), compared to 33.9 years (SD: 6.0) and 32.3 years (SD: 6.5) among patients with and without health insurance, respectively ($p < 0.05$). Male MMT patients accounted for more than 98%, and about one third of all patients completed high school or higher education levels. Nearly half of the patients were married, while single ones accounted for 41.0%. No differences were observed in age, sex, education, and marital status between the group with health insurance and that without health insurance (Table 1).

Jobless patients constituted 7.8%, compared to 56.6% and 35.7% having unstable and stable jobs, respectively. The unemployment rate among patients with health insurance was 5.1% whereas the figure for those without health insurance was 10.3%. Meanwhile, patients with health insurance (49.4%) had a higher rate of stable jobs than those without health insurance (23.1%) (Table 1).
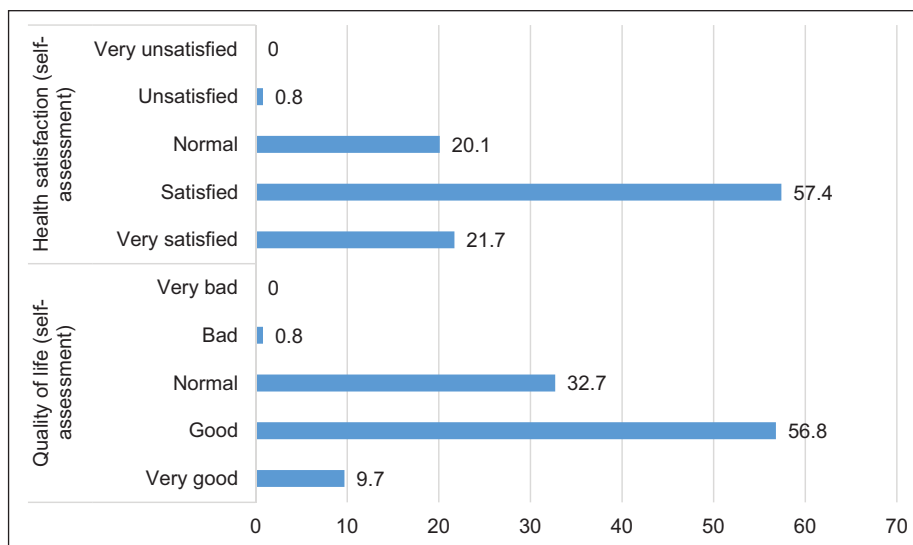
Figure 1. Participant's quality of life and health satisfaction (self-assessment) (*N* = 373).

Table 2. Participants' quality of life in different aspects (*N* = 373).

Components of quality of life	Points		Points (in 100-scale)	
	Mean (SD)	Min–max	Mean (SD)	Min–max
Physical	15 (1.7)	9.7–19.0	68.8 (10.8)	35.7–96.4
Mental	14 (1.6)	8.7–18.7	63.8 (10.0)	29.1–91.6
Social	13.7 (2.2)	8.0–20.0	61.1 (13.5)	25.0–100.0
Environmental	15.3 (1.8)	10.5–20.0	70.9 (11.5)	40.6–100.0
Overall			66.1 (6.6)	43.2–83.6

Regarding Methadone treatment, 61.4% of participants did not have positive drug test results during treatment (52.8% in patients with health insurance vs 69.2% in those without health insurance). The rates of MMT patients with more than three positive drug test results in two corresponding groups were 11.2% and 6.2% ($p < 0.05$). In this study, the median duration on MMT was 43 months; patients with health insurance spent a median of 44.5 months on MMT, compared to 41 months among uninsured ones ($p > 0.05$). About 20% of participants had HIV-positive results, and 50% had other chronic diseases (Table 1).

Quality of life in methadone maintenance treated patients

Figure 1 shows the results of participants' self-assessment about their health satisfaction and QoL. More than 50% of the participants were satisfied with their current health status and reported having good QoL. Participants expressing dissatisfaction with their current health and reporting poor QoL both accounted for only 1%.

Participants' QoL was converted to a 0 to 100 point scale according to the WHO's recommendation, and the mean QoL score was 66.1 (SD = 6.6). The highest mean score was found in the environmental component (70.9 points) while the lowest in the social component (61.1 points) (Table 2).

Factors associated with patient quality of life

In Table 3 univariate analysis showed that married patients or those participating in health insurance had better perceived QoL. In contrast, older age and HIV positive status were associated with poorer QoL. The multivariate analysis including all variables also showed a mean QoL score difference of 1.92 points between patients with no positive drug test results and those with 1 to 2 positive results during treatment (95% CI: 0.4–3.44). Besides, the mean perceived QoL score of patients with 1 to 2 HIV-positive test results was 2.66 points (95% CI: 0.72–4.61) lower than that of those with no positive result. This study indicated that the score of perceived QoL in married patients was 1.56 points (95% CI: 0.2–2.91) higher than those in the other marital status groups. Similarly, patients with health insurance scored 2.18 points (95% CI: 0.76–2.59) higher than those without health insurance. Our study results pointed out no associations of factors such as education level, occupational status, presence of other chronic diseases, and other types of marital status (i.e. being separated/divorced/widowed) with perceived QoL.

Table 3. Univariate and multivariate linear regression analysis of characteristics associated with perceived quality of life of 376 MMT patients, Long An province, 2019.

Characteristics	Univariate analysis			Multivariate analysis		
	Coeff*	95% CI	*p* Value	Coeff*	95% CI	*p* Value
Age in years, mean (SD)	−0.12	(−0.22; −0.014)	0.03	−0.13	(−0.24; −0.03)	0.013
Education						
Less than high school education	Ref			Ref		
High school education or above	1.03	(−0.37; 2.44)	0.15	0.67	(−0.71; 2.05)	0.34
Marital status						
Single	Ref			Ref		
Married	1.53	(0.14; 2.93)	0.03	1.56	(0.2; 2.91)	0.025
Separated/divorced/widowed	1.7	(−1.12; 4.44)	0.24	2.17	(−0,54; 4.88)	0.116
Occupational status						
Jobless	Ref			Ref		
Unstable jobs	−1.1	(−3.6; 1.49)	0.41	−1.53	(−4.02; 0.96)	0.23
Stable jobs	0.9	(−1.7; 3.54)	0.50	−0.34	(−2.97; 2.28)	0.8
Number of times having positive drug test results during treatment						
None	Ref			Ref		
1–2 times	−1	(−2.48; 0.48)	0.19	−1.92	(−3.44; −0.40)	0.013
3+ times	2.29	(−0.14; 4.71)	0.06	1.37	(−1.08; 3.82)	0.273
Length of time on MMT treatment (month)	0.04	(−0.001; 0.08)	0.06	0.06	(0.02; 0.1)	0.005
Having health insurance						
No	Ref			Ref		
Yes	1.8	(0.47; 3.13)	0.01	2.18	(0.76; 2.59)	0.003
HIV-positive status						
No	Ref			Ref		
Yes	−2.78	(−4.42; −1.14)	0.00	−2.66	(−4.61; −0.72)	0.007
Other chronic diseases						
No	Ref			Ref		
Yes	−1.36	(−2.7; −0.02)	0.05	−0.59	(−2.13; 0.95)	0.45

Discussion

Quality of life in methadone maintenance treated patients

The QoL scores of MMT patients in our study were higher than those in previous studies (Baharom et al., 2012; Chou et al., 2013). This difference might be due to the younger age of our study participants (33.1 years). Previous studies showed that apart from culture factors and medical costs of MMT, older age was negatively associated with QoL (Smith and Larson, 2003). In Vietnam, patients had to pay for consumables, that is, US$130/year (Johns et al., 2018), but not for medications while under treatment. The reason behind this is that according to the government policy, all Methadone medications are covered in the insurance-covered drug list. This means patients with health insurance do not have to pay for medical costs of MMT whereas the uninsured patients receive support from the local government and receive free-of-charge Methadone medications. This amount is lower than the costs in some other countries, for example Taiwan with US$1.180/year (Chou et al., 2013).

In agreement with other researchers, we found that social and mental functioning aspects of QoL were poorer than other aspects (Zhou et al., 2017). Drug users tend to encounter stigma and discrimination, which affects their daily activities and social relationships (Young et al., 2005). Therefore, the social and mental functioning aspects of their QoL was poor (Ahern et al., 2007).

Factors associated with patients' quality of life

In the adjusted linear regression model, the patients' age, marital status, the number of times having positive drug test results during treatment, the duration on MMT, ownership of health insurance, and HIV-positive status were significantly associated with their QoL.

Specifically, our present study found that the MMT patients' QoL declined as they became older, which is well in line with some previous studies (Smith and Larson, 2003). This can be explained by their decreased physical health, deteriorated immune systems, and higher likelihood of having mental health issues.

In agreement with a study in Iran (Aghayan et al., 2015) or another one in Taiwan (Yen et al., 2015), our study also revealed that married patients had higher QoL than those from the other marital status groups. Married patients received support from their spouses in terms of not only daily activities but also disease treatment, especially MMT. Their spouses provided them with emotional support and encouragement so that they became less worried and encountered fewer mental health problems, thus having better QoL.

A long-term duration of MMT contributed to better QoL, which is also confirmed by some other studies (Babaie and Razeghi, 2013; Chou et al., 2013; Sadeghi et al., 2017; Wang et al., 2012). When starting MMT, patients would feel less worried about carrying drug use-related financial burdens, being arrested, or suffering from heroin overuse, which resulted in their better QoL. Drug users tended to face social stigma; thus, when attending MMT, many of them were no longer dependent on heroin; instead, they self-confidence was bolstered during the treatment. Additionally, their mental health improved because they received support from both health professionals and family members during treatment.

In Vietnam, health insurance does not cover the costs of daily methadone use (i.e. the costs of consumables) but pay for routine laboratory tests and costs for treatment of adverse effects and comorbidities in compliance with regulations by Vietnam's Ministry of Health. Accordingly, drug users participating in MMT are less worried about paying additional costs of treatment and laboratory tests. Drug users with health insurance adhered to routine examination and laboratory testing better than those without health insurance. They also sought and received treatment more promptly, sufficiently, and properly than those who had to pay for treatment by themselves. Hence, the former had better mental and emotional health and higher QoL than the latter.

Patients receiving MMT may suffer from comorbidities such as HIV and hepatitis. According to previous studies, comorbidities contribute to lower QoL (Batki et al., 2009; Korthuis et al., 2011; Tran et al., 2016) because they lead to poorer health status and higher treatment costs. Besides, patients also bear the burden of treatment-related costs and are limited in daily activities. It is worth noting that patients living with HIV also experience social stigma and discrimination.

In our current study, some patients used heroin while on MMT although the treatment helped reduce their compulsive need for this opioid, decreasing their QoL (Tran et al., 2012; Wang et al., 2014). Because drug use among patients on MMT is quite commonplace, urine testing for morphine should be regularly done for the sake of monitoring their heroin use. Patients should also be provided with counselling and support to withdraw from heroin completely. This would help reduce their financial burden due to heroin use and the impacts of heroin on their mental and physical health, thereby increasing their QoL.

Strength and limitation

Our present study has some limitations that should be addressed. First, we used a self-administered questionnaire to collect data relating to the QoL of MMT patients. In other words, the assessment of their QoL, to a certain degree, is subjective by nature. Second, this study did not examine how social support or the quality of MMT services are associated with the patients' QoL. Finally, the representativeness of the study sample was not guaranteed as we used a convenient sampling method, that is, recruiting all patients during data collection.

Conclusion and recommendations

The study results have important implications about MMT for health facilities. Therefore, patients' QoL—an indicator of the effectiveness of MMT—should be regularly assessed during this treatment. Besides, to improve the QoL of patients with comorbidities, treatments for HIV/AIDS and chronic diseases should be integrated. Moreover, MMT patients should be encouraged and supported to participate in health insurance to have more reassurance in health care.

Further research should focus on the maintenance and adherence to treatment among patients receiving MMT and the associations of these factors with their QoL, thereby informing and developing interventions aimed at bettering their QoL and adherence to treatment. The maintenance of MMT is expected to increase their QoL, especially the social functioning aspect. The patients' QoL should be continuously assessed to provide an insight into how it changes over time and which of its aspects are influenced by MMT.

ORCID iDs

Bui Thi Tu Quyen (iD) https://orcid.org/0000-0002-5061-8488

Linh Thuy Nguyen (iD) https://orcid.org/0000-0002-9233-1143

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