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Family support, quality of life and concurrent substance use among methadone maintenance therapy clients in China

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SUMMARY

Objectives—The methadone maintenance therapy (MMT) programme has been scaled up rapidly in China. This study explored the family support perceived by MMT clients and its association with their quality of life and concurrent illicit drug use.

Study design—Cross-sectional study.

Methods—Five hundred and sixty MMT clients were selected at random from 28 MMT clinics and services in Zhejiang and Jiangxi Provinces, China for participation in a face-to-face interview study. The participants' perceived family support and quality of life were measured through face-to-face structured interviews conducted by trained interviewers. Self-reported information about illicit drug use was obtained from clients. Urine specimens were collected from the participants to test for heroin use.

Results—Among the 560 participants, 471 (84.1%) were male and 168 (30.0%) were unemployed at the time of the study. In total, 398 (71.1%) were injecting drug users and 309 (55.2%) had a history of drug use of more than 10 years. Around one-third (*n*=211, 37.7%) of the participants reported concurrent illicit drug use or had a positive urine test. Perceived family support was associated with increased physical health, psychological health, environmental health and social health. In addition, perceived family support was negatively correlated with concurrent substance use.

Conclusions—Drug use and MMT is a family issue in China. Based on the findings of this study, it is suggested that involving family members in recruitment and interventions of the MMT programme will achieve higher rates of participation and compliance.

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Ethical approval
Institutional Review Boards of the University of California, Los Angeles and the Chinese Centre for Disease Control and Prevention.

Competing interests
None declared

Keywords

Methadone maintenance therapy; Family support; Opioid use; China

Introduction

The methadone maintenance therapy (MMT) programme has a relatively short history in China. The Chinese Government initiated pilot studies of MMT in 2004 based on international scientific evidence of its efficacy in reducing heroin use, transmission of human immunodeficiency virus (HIV) and criminal behaviour.[1,2] The first eight pilot clinics were established in the five provinces with the greatest numbers of drug users and HIV cases: Guangxi, Guizhou, Sichuan, Yunnan and Zhejiang.[3,4] An evaluation study of these pilot programmes showed a reduction in heroin use and drug-related crime, and an increase in employment and healthy family relationships among those who received MMT.[5] With the success of the pilot clinics, the MMT programme has been rapidly scaled up. By December 2009, 680 MMT clinics had been established in 27 provinces across China, cumulatively serving more than 240,000 clients. However, MMT programmes are facing challenges, including low coverage of the total drug-using population[6] and the high client drop-out rate.[7] In addition, a substantial proportion of clients continue illicit drug use while participating in MMT programmes. This paper provides a useful insight into the potential role of the family in improving the efficacy of MMT programmes and the client experience.

Drug use is commonly seen as an individual choice and experience in most Western cultures.[8] The case is very different in China because of the family-oriented culture.[9,10] In traditional Chinese culture, individuals are not viewed as independent agents. They are embedded in a system with the family as the basic unit. Family identity is often considered to be equally, or even more, important than individual identity.[11,12] Previous studies revealed that most parents of drug users in China took personal responsibility for the fact that their children were using drugs, and these parents felt psychological pressure and shame in front of their neighbours and friends.[13] On the other hand, drug users often rely to a greater extent on their family than their social network for support. More than half of HIV-positive injecting drug users voluntarily disclosed their serostatus to their family members, and were more likely to seek support from family members than friends.[10]

Given the important role that families play in the life of drug users, this study examines the role of family support in MMT in China. It posits that a good understanding of the role of family support in the lives of MMT clients can better inform the design of an HIV-related intervention, and also make existing programmes more efficient and more accessible to the targeted population. This study will test two hypotheses: (1) whether family support for MMT clients will improve their quality of life; and (2) whether family support will reduce the concurrent substance use among MMT clients in China.

Methods

Study sites and participants

The data were collected in Zhejiang and Jiangxi Provinces between March and September 2008. At the time of the study, there were a total of 28 MMT clinics located in different counties or cities in these two provinces, and all of them were included in the study. Twenty MMT clients were selected at random from each of the 28 MMT clinics using a random number table, yielding a total sample size of 560. The selected clients were approached by MMT service providers when they came to the clinic for treatment and were informed of the study. The refusal rate was less than 5%. The clients had to be 18 years or older to

participate the study. Each participant was paid 40 Yuan (US$5.88) as an incentive upon completion of the survey. The study procedure and materials were approved by the Institutional Review Boards of the University of California, Los Angeles and the Chinese Centre for Disease Control and Prevention.

Data collection

Before data collection, respondents were informed of the study purpose, procedures, potential benefits and risks. Informed consent was obtained assuring voluntary participation. The anonymous face-to-face surveys administrated by two trained interviewers were conducted with the clients in private rooms in the MMT clinics. After the interview, each participant was asked to provide a urine specimen to detect opioid use. The interviewer told the drug users that the purpose of the urine test was for scientific research alone, the testing was voluntary and confidential, and the result would not affect their methadone provision, health care or employment. To ensure anonymity, no personal identifiers were linked to the survey responses or urine test results.

Measurement

The client survey asked participants about their sociodemographics, course of drug use, duration of maintenance treatment, current dose of methadone received, and if they were concurrently using illicit substances whilst in the MMT programme.

Family relations—Participants' perceived family support was measured using the scale developed by Hu et al. in 2007. This scale has been used and validated among Chinese populations,[14] and consists of 17 items. For each item, participants were asked to rate how true each statement was for their own family on a four-point Likert scale. After reversing certain items, a higher score indicates better family functioning. Cronbach's alpha coefficient for this measurement was 0.77.

Quality of life—In this study, quality of life was measured using the Chinese version of the Short Form of the World Health Organization's quality of life questionnaire (WHOQOL-BREF).[15] This is a 26-item questionnaire developed from the original 100-item questionnaire, the WHOQOL-100.[16] The WHOQOL-BREF covers four domains, including seven items for physical health, six items for psychological health, three items for social health and eight items for environmental health. Each individual item is scored from one to five on a response scale. The score of each subscale is the sum of scores from each item within that subscale. Higher scores indicate better quality of life. For this study population, the Cronbach alpha values calculated for physical, psychological, social and environmental quality of life were 0.70, 0.78, 0.57 and 0.63, respectively.

Data analysis

SAS Version 9.1.3 was used for data analysis. Firstly, the distribution of demographics and treatment background information were analysed descriptively. Secondly, the mean score of each of the four quality-of-life domains and the mean score for family support were calculated. Concurrent drug use was defined as a positive urine test or self-reported illicit drug use since initiating methadone treatment. Pearson correlation coefficients were calculated to investigate relationships between the demographic and treatment characteristics, quality-of-life domains, family functioning scales and concurrent illicit substance use. Finally, multiple regression models were performed with the four domains of quality-of-life score, controlling for the simultaneous effect of demographic characteristics, treatment effect and family support. Logistic regression was also conducted with concurrent

illicit drug use, statistically adjusting for demographics, treatment factors and family support scores. Standardized regression coefficients and their significance levels are reported.

Results

The background characteristics of the participants are summarized in Table 1. Among the 560 MMT clients interviewed, 471 (84.1%) were male, 310 (55.4%) were aged between 30 and 39 years, 350 (53.6%) had obtained a junior high education, and 168 (30.0%) were unemployed at the time of the study. The majority (398, 71.1%) were injecting drug users, 309 (55.2%) had a history of drug use of more than 10 years, and 474 (84.6%) had been registered as drug users by the local police department. The clients had been using MMT for an average of 13.5 months, ranging from 4 days to 3.9 years. The average daily dose of methadone was 42.5 ml (standard deviation 21.7 ml), and the mean time to travel to the MMT clinic each day was a 45-min roundtrip, ranging from 2 min to 5 h. In total, 211 (37.7%) participants reported concurrent illicit drug use or had a positive urine test.

Table 2 presents the correlation coefficients of variables. Male participants tended to have a longer history of drug use than females (r=0.139). Married participants and participants cohabitating with their boyfriend/girlfriend were more likely to be employed (r=0.290) and less likely to be injecting drug users (r=−0.144) than those who were single. Unemployment status was associated with lower physical (r=−0.132), psychological (r=−0.202), environmental (r=−0.156) and social (r=−0.275) health. Females (r=0.140), married/cohabiting participants (r=0.106) and employed participants (r=0.208) reported a significantly higher level of family support. The level of family support was negatively associated with the duration of drug use (r=−0.118) and positively associated with all four domains of quality of life (r=0.380 for physical health, r=0.459 for psychological health, r=0.406 for social health, r=0.500 for environmental health). The clients in clinics who perceived a higher level of family support were less likely to concurrently use illicit drugs (r=−0.112). Participants' psychological health (r=−0.145) and environmental health (r=−0.119) were also significantly negatively associated with concurrent drug use.

The results of multiple regression analyses are presented in Table 3. The first four columns of the table summarize findings from the multiple linear regression models for four domains of quality of life, controlling for background characteristics, history of drug use and MMT factors. Male gender was associated with a higher level of environmental health (β=0.079). Older age was negatively associated with social health (β=−0.098) and environmental health (β=−0.102). Being married or cohabiting with a partner was positively associated with psychological health (β=0.033) and environmental health (β=0.076), while unemployed status was negatively associated with these two domains of quality of life (β=−0.061 and −0.146 for psychological health and environmental health, respectively). Injecting drug users reported a lower level of social health (β=−0.082) and environmental health (β=−0.084). After controlling for potential confounders, the level of family support remained positively associated with all four domains of quality of life (β=0.360 for physical health, β=0.378 for psychological health, β=0.378 for social health, β=0.449 for environmental health).

The last column of Table 3 shows the results of logistic regression of concurrent illicit drug use. The longer the period of opioid use before commencement of treatment, the more likely the client was to concurrently use illicit drugs [odds ratio (OR) 1.062, P<0.05). The current doses were positively associated with concurrent drug use (OR 1.011, P<0.05). The clients who perceived a higher level of family support were less likely to concurrently use illicit drugs where other factors were constant (OR 0.970, P<0.01).

Discussion

Past research has demonstrated that drug abuse is a complex issue and is linked to many social, economic, criminal and health challenges facing different societies.[17] Drug use is a family disease; when one member of a family is a drug user, the impact radiates through the entire family.[13] The importance of the family has been shown in other studies regarding drug use prevention and treatment. In the USA, a study among American-Indian adolescents found that positive family relationships mediated the negative impact of addicted family members, violence victimization and negative school environment on the symptoms of illicit drug abuse.[18] A randomized controlled trial that targeted youth at risk for problem behaviour and substance use produced outcomes which showed that the family-centred intervention model was effective for reducing the long-term risk for substance use in adolescence. Another qualitative study found that family support was a motivator for the drug users' entrance into rehabilitation.[19]

This study demonstrated the positive correlation between family support and quality of life, and the preventive effect of family support for concurrent substance use in MMT clinics. Family support could benefit the MMT client in many different ways. Family members could help previous drug users to make important decisions, such as enrolling and remaining in the MMT programmes. Thus, family support can also have significant implications for the efficacy of family-focused interventions and programming. Based on the findings of this study, the Chinese Government can achieve a higher rate of participation and compliance from community opioid addicts by recruiting and educating family members to facilitate the process. Potentially, family members can act as advocates for the policy, and encourage opioid users to participate in the treatment programme and take medications on a long-term, daily basis. This echoes the findings in other research that, in order to be successful, HIV-related services and programmes need to involve families appropriately and effectively.[20,21]

Another study finding was that unemployment was associated with a decreased family relationship and quality of life among MMT clients. This finding is supported by studies conducted in other countries. In 2009, Brown and Zuelsdorff ascertained that unemployment was a significant factor associated with failure to complete drug treatment among African-American participants.[22] MMT increased the clients' ability to work. Finding a job is a vital first step for drug users to rebuild their social integration. However, due to the negative opinion of drug users and scarce information on drug problems in society, many employers were generally reluctant to accept employment applications of individuals who were or who had been treated for addiction.[23] It is suggested that MMT programmes are not only vehicles for clinical activities, but also public health and social engineering programmes. Treatment plans for MMT participants should incorporate services addressing needs such as occupational training and job referral. Society as a whole, from therapists to employers, should therefore pay more attention to active employment of MMT clients, and be aware that a job is, without any doubt, an important factor in the rehabilitation process.

There are some limitations to this research. Firstly, the study employed a cross-sectional design that limited the authors to make causal inferences. Secondly, the two study sites, Zhejiang and Jiangxi Provinces, only have modest drug problems. The MMT programmes and clients in these areas might be different from those in other parts of China. One should be cautious in generalizing the findings to other geographic locations and populations. Nevertheless, this study identified an association between family support and success in methadone treatment. Improvements in treatment outcome may result from providing comprehensive and supportive services involving family members for clients in order to improve their quality of life and eliminate drug use. Preventive policies will not be

successful unless they are based on basic social units such as families, labour organizations and social services.

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Table 1

Characteristics of participants with concurrent drug use.

	n (*n*=560)	%	No. of concurrent drug users (*n*=211, 37.7%)	%	*P*-value
Gender					
Female	89	15.9	32	36.0	
Male	471	84.1	179	38.0	0.715
Age (years), 33±6, range 19–55					
18–29	160	28.6	58	36.3	
30–39	310	55.4	123	39.7	
≥40	90	16.1	30	33.3	0.499
Marital status					
Single	127	22.7	52	40.9	
Married or living with partner	350	62.5	125	35.7	
Divorced/separated/widowed	83	14.8	34	41.0	0.465
Education					
Elementary school	107	19.1	36	33.6	
Junior high	300	53.6	119	39.7	
Senior high and above	153	27.3	56	36.6	0.516
Route of drug administration					
Intravenous injection	398	71.1	154	38.7	
Others	162	28.9	57	35.2	0.437
History of drug use (years), 9.5±4.0, range 1–20					
<10	251	44.8	121	39.2	
≥10	309	55.2	90	35.9	0.423
Length of treatment (months), 13.5±9.5, range 0.1–48.3					
>6	129	23.0	64	49.6	
6–18	289	51.6	96	33.2	
≥18 months	142	25.4	51	35.9	0.005
Current dose (ml), 42.5±11.7, range 2.0–160.0					
<30	131	23.4	37	28.2	

	n	%	No. of concurrent drug users	%	*P*-value
	(*n*=560)		(*n*=211, 37.7%)		
30–50	223	39.8	87	39.0	
≥50	206	36.8	87	42.2	0.031

Mean ± standard deviation.

Table 2

Correlation coefficients and level of significance for background characteristics, family support, quality of life and concurrent substance use.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Female														
2. Age	−0.149***													
3. Year of education	0.099*	−0.047												
4. Married/cohabiting	0.004	0.042	−0.008											
5. Unemployed	0.056	0.028	−0.060	−0.290***										
6. Years of drug use	−0.139**	0.453***	−0.043	0.023	0.017									
7. Injecting drug user	−0.046	−0.098*	−0.040	−0.144***	0.082	0.143***								
8. Duration of methadone maintenance therapy	−0.020	0.212***	0.035	0.054	−0.026	0.255***	0.151***							
9. Current daily dose	−0.030	−0.027	0.019	−0.039	0.085*	0.052	0.137**	0.045						
10. Family support	0.140***	−0.077	0.081	0.106*	−0.208***	−0.118**	−0.070	0.018	−0.023					
11. Physical health	0.027	−0.096*	0.067	0.060	−0.132**	−0.162***	−0.139***	−0.125**	−0.111**	0.380***				
12. Psychological health	−0.002	−0.072	−0.018	0.151***	−0.202***	−0.145***	−0.103*	−0.037	−0.042	0.459***	0.639***			
13. Social health	0.105*	−0.120**	−0.035	0.101*	−0.156***	−0.100*	−0.232**	−0.058	−0.099*	0.0406***	0.508***	0.483***		
14. Environmental health	0.007	−0.143***	0.095*	0.171***	−0.275***	−0.156***	−0.132**	−0.023	−0.023	0.500***	0.532***	0.598***	0.497***	
15. Concurrent drug use	−0.015	−0.014	0.017	−0.052	−0.010	−0.073	0.032	−0.042	0.105*	−0.112**	−0.060	−0.145***	−0.036	−0.119**

*$P<0.05$,

**$P<0.01$,

***$P<0.001$,

****$P<0.0001$.

Table 3

Multiple regressions and logistic regression on quality of life and concurrent substance use.

	Physical health	Psychological health	Social health	Environmental health	Concurrent drug use
Standardized estimates	**β**	**β**	**β**	**β**	**OR**
Female	−0.047	0.044	0.044	−0.079*	0.999
Age	−0.031	−0.098	−0.098*	−0.102*	1.014
Years of education	0.038	−0.078	−0.078	0.048	1.016
Currently married/cohabiting	0.004	0.033*	0.033	0.076*	0.823
Unemployed	−0.307	−0.061*	−0.060	−0.142***	0.754
Years since first opioid use	−0.069	0.015*	0.015	−0.055	1.062*
Injecting drug user	−0.078	−0.083	−0.082*	−0.084*	1.166
Duration of maintenance methadone therapy (months)	−0.094*	−0.033	−0.032	0.006	0.993
Current daily dose	−0.083*	−0.072	−0.071	0.011	1.011*
Family support	0.360***	0.378***	0.378***	0.449***	0.970**

OR, odds ratio.

*$P<0.05$,

**$P<0.01$,

***$P<0.001$.