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# Provider–Client Interaction in Methadone Treatment Clinics in China

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## Abstract

This study examines provider–client interactions in the context of methadone maintenance treatment (MMT) in China. Service providers were recruited from six methadone clinics. A total of 41 providers were enrolled in the study and participated in an assessment from February to March 2010. Descriptive and multiple regression analyses were performed. Providers with a higher level of negative attitude toward drug users were less likely than others to interact with clients. Female providers were less likely to have negative attitudes toward drug users as compared with their male counterparts. Doctors were more likely than others to have negative attitudes toward drug users. Knowledge of MMT was not related to either negative attitude toward drug users or to provider–client interaction. The findings indicate an urgent need to address the issue of provider attitudes, which can impact interactions with clients and influence efforts to maintain treatment retention and outcomes for drug users.

### Keywords

provider–client interaction; methadone maintenance treatment; China

## Introduction

Injecting drug use has fueled the HIV epidemic in China. Nearly 32.2% of those living with HIV/AIDS in 2009 were infected by injecting drug use, with HIV prevalence as high as 50% among drug users in certain cities (China Ministry of Health, UNAIDS, & World Health Organization, 2010). Methadone treatment for opiate dependence has been available since the 1960s (Dole & Nyswander, 1965) and is considered an effective method to reduce heroin use and HIV transmission. In 2004, methadone maintenance treatment (MMT) was first introduced in China as a pilot, with the establishment of eight clinics in five provinces displaying the highest injecting drug use prevalence (Pang et al., 2007; Wu, Sullivan, Wang, Rotheram-Borus, & Detels, 2007). By the end of 2010, more than 701 clinics were serving more than 295,000 clients. This rapid scale-up of MMT programs in China has improved quality of life and employment, as well as decreased drug use and criminality, benefiting tens of thousands of drug users (Pang et al., 2007; Sullivan & Wu, 2007).



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Despite this impressive progress, the scale-up of China's MMT programs have resulted in a wide range of challenges. Previous studies have reported such issues as high drop-out rates, gaps between the need in communities and available resources, clients' psychological needs not being adequately addressed, and a significant number of clients using heroin during methadone treatment (Cao et al., 2010; Lin, Wu, Rou, Pang, et al. 2010; Lin, Wu, Rou, Yin, et al. 2010; Liu et al., 2009; Reid & Aitken, 2009; Yin et al., 2010). As much attention has been paid to treatment retention and outcomes, the most logical choice would be to examine other process features to better understand how programs work and, more importantly, how to achieve sustainable outcomes.

Provider–client interaction was one of the process features we examined in this study, which over the past 30 years has predominately been studied in primary care settings (Heritage & Maynard, 2006; Neumann et al., 2010). Previous studies demonstrated that positive interaction between providers and their clients (e.g., perceived understanding and empathy, ability to promote self-management, shared decision making, and effective communication) could increase the effectiveness of treatment and improve client health outcomes (Matthias et al., 2010; Neumann et al., 2010; Roter, Hall, & Katz, 1988; Stewart, 1995). Factors that have been shown to impact the provider–client interaction include a busy work schedule, lack of time, inadequate knowledge, and negative attitude (Astedt-Kurki, Eija Paavilainen, Tammentie, & Paunonen-Ilmonen, 2001; Beck, Daughtridge, & Sloane, 2002; DiMatteo, 1997; Kelly, O'Grady, Brown, Mitchell, & Schwartz, 2010). Effective provider–client interaction has been studied in multiple clinical trials and evaluated as an important ingredient in the delivery of satisfactory services (Griffin, Kinmonth, Veltman, Gillard, & Stewart, 2004).

There have also been inquiries into provider–client interaction in drug-use treatment studies, supporting the hypothesis that the relationship between providers and clients could be positively associated with treatment outcomes (Jackson, 2002; Joe, Simpon, Dansereau, & Rowan-Szal, 2001; Magura, Nwakeze, Kang, & Demsky, 1999; Simpson, Joe, Rowan-Szal, & Greener, 1997). For example, a study by Blaney and Craig (1999) revealed a significant effect on outcomes by assigned providers, not by methadone dose alone. This study was the very first investigation to examine provider–client interaction in the context of methadone treatment in China. The goal of this study is to explore various factors contributing to provider–client interaction, especially its relationship with providers' attitudes toward drug users.

## Method

### Study Sample

This study was part of an intervention pilot that was conducted in Sichuan Province, China. Sichuan Province is one of the most heavily impacted regions by injecting drug use (Ministry of Health, People's Republic of China, 2010). Based on a 2009 epidemiological report, the province was ranked fourth in China among those having the most cumulative reported HIV/AIDS cases. Participants were recruited from six MMT clinics from February to March 2010. After receiving a complete description of the study, the participants signed informed consent forms. Participants were required to be at least 18 years old and currently working as professional staff in one of the participating MMT clinics. A total of 41 participants voluntarily participated in the study.

### Measures

Developed specifically for this study, the Health Professional Survey was used for data collection. The survey contained 160 questions and took about 20 to 25 min to complete.

The Institutional Review Board at the University of California, Los Angeles, and the Chinese Center for Disease Control and Prevention approved all study documents and procedures for this study.

Provider–client interaction was measured by a 10-item scale that was developed for this study. For each item, participating providers were asked to rate their interaction with clients on a 5-point subscale (1 = *not at all* to 5 = *very much likely*) on the likelihood that they would (a) provide counseling to their clients, (b) answer clients' questions about their concerns, (c) ask clients the questions of their concerns, (d) try to be friendly with their clients, (e) find out the reason their clients missed a dose, (f) think it is necessary to interact with their clients other than giving the methadone dose, (g) encourage their clients when they interact with them, (h) feel comfortable when they work closely with clients, (i) interact with their clients just like other patients, and (j) feel comfortable interacting with their clients. The 10-item scale score ranged from 10 to 50 with a high internal consistency (Cronbach's $\alpha = .78$).

Negative attitude toward drug users was adapted from a brief scale of attitude measurement (National Center for Education and Training, 2006) and used to measure how the providers felt about drug users. There were seven items used in this study. Participants were asked to what extent they (a) consider adverse life circumstances are likely to be responsible for a person's problematic drug use, (b) consider an individual is personally responsible for his or her problematic drug use, (c) feel angry toward people using drugs, (d) feel disappointed toward people using drugs, (e) feel concerned toward people using drugs, (f) consider people who use drugs deserve the same level of medical care as people who do not use drugs, and (g) consider people who use drugs are entitled to the same level of medical care as people who do not use drugs. Reponses for each item ranged from 1 (*not at all*) to 5 (*a great deal*). The scoring direction of some items was reversed so that a higher score indicated a higher level of negative attitude toward drug users. The seven-item scale ranged from 7 to 35, with an average score of 15.4 and a Cronbach's $\alpha$ of .65.

MMT knowledge consisted of 18 true or false questions. The majority of the questions were based on the work of Caplehorn, Lumley, and Irwig (1998), and some questions were developed based on the MMT Protocol (China Ministry of Health, Ministry of Public Security, and State Food & Drug Administration, 2006). Sample statements included "Applicants must be 20 years or older to apply for MMT," "Methadone maintenance can cause chronic constipation," and "Methadone maintenance increases the severity of preexisting depression." For the true or false questions, the MMT knowledge score was represented by the number of correct responses. Answers were confirmed by an expert who has been working closely with the development of MMT programs in China. The MMT knowledge score was constructed by summing the number of correct responses, ranging from 0 to 18, with a mean score of 14.9.

Demographic information, including participants' gender, age, and years of education, were also collected. Work-related questions included type of profession, years of service in the medical field, and months of working at the MMT clinic.

## Data Analysis

SAS statistical software (Version 9.1) was used to perform all analyses. First, we descriptively analyzed the distribution of demographics and calculated the means and standard deviations of the measures of MMT knowledge, attitudes toward drug users, and provider–client interaction. Second, Pearson's correlation coefficients were calculated to investigate the relationships among gender, age, years of education, profession, MMT knowledge, attitudes toward drug users, and provider–client interaction. Third, multiple

regressions were conducted to identify relationships between provider–client interactions, attitudes toward drug users, and contributing factors to provider–client interactions. For the variables selected in the models, standardized regression coefficients and their significance levels were reported.

## Results

The demographic characteristics of the study participants are presented in Table 1. Among the 41 participants, 19 were medical doctors and 22 were nurses or laboratory technicians. Sixty-one percent of the participants were women. The average age of the participants was 42 years, and the majority of the participants were 45 years old or younger. On average, the sample reported 13.5 years of education. Twenty-two providers (63.6%) had worked in the medical field for more than 15 years. Slightly more than half (53.6%) of the providers in the sample reported working in the current MMT clinic for more than two years, whereas 17.1% reported a year or less.

Table 2 presents correlation coefficients among selected variables, including gender, age, years of education, profession, MMT knowledge, negative attitude toward drug users, and provider–client interaction. Female providers were more likely to report a higher level of provider–client interaction ($r = .343$, $p < .05$) and a lower level of negative attitude toward drug users ($r = -.377$, $p < .05$) than their male counterparts. Relationship between being a medical doctor and negative attitude toward drug users was also significant ($r = .341$, $p < .05$). Negative attitude toward drug users was significantly related to provider–client interaction ($r = -.542$, $p < .001$).

Table 3 outlines multiple regression models examining factors associated with negative attitude toward drug users and provider–client interaction. Female providers were associated with a lower level of negative attitude toward drug users (standardized $\beta = -.384$, $p = .030$). Profession was also found to be a predictor for negative attitude toward drug users, with medical doctors likely to report a higher degree of negative attitude toward drug users than nurses or laboratory technicians ($\beta = -.368$, $p = .029$). Controlling for all independent variables except negative attitude toward drug users, findings from regressions on provider–client interaction revealed that gender remained a significant predictor ($\beta = .362$, $p = .050$). In the final regression model, the effect of gender on the provider–client interaction became insignificant when negative attitude toward drug users was also controlled. In addition, providers who reported a higher level of negative attitude toward drug users were less likely to interact with clients at MMT clinics ($\beta = -.442$, $p = .011$). In these models, MMT knowledge was found not to be associated with either negative attitude toward drug users or provider–client interaction.

## Discussion

The aim of this study was to explore the interaction between providers and clients in the context of MMT clinics in China. Unlike clients in hospitals or medical clinics, MMT clients come to clinics everyday for a routine procedure, and unless special sessions are scheduled, providers normally interact only briefly with clients. Thus the short, perfunctory nature of the client interaction during MMT administration can become a barrier to effective provider–client interaction. Future studies of methadone treatment environments should take into consideration the provider–client relationship and the factors identified in this study.

Prior studies of MMT provider attitudes have focused on staff perceptions of abstinence or maintenance orientation, and their impact on treatment outcomes (Caplehorn et al., 1998; Gjersing, Waal, Caplehorn, Gossop, & Clausen, 2010; Kang, Magura, Nwakeze, & Demsky,

1997). This study examined the relationship between providers' negative attitudes toward drug users and their behavior intent in client interaction in the clinics. Our findings revealed that providers with strong negative attitudes were less likely to interact with their clients, suggesting that providers' general attitudes toward drug users were significantly associated with their particular patterns of interaction with MMT clients.

The results of this research highlight the need for more attention directed at stigmatizing attitudes among MMT providers. Stigma and discrimination toward drug users are common in areas with high drug use prevalence (Deng, Li, Sringernyuang, & Zhang, 2007). Since the drug use is considered to be in sharp conflict with the cultural and social values of the Chinese society, the opponents of MMT in China have strong moral reservations about the program (Tang, Zhao, Zhao, & Cubells, 2006). Stigma attached to drug users may not only prevent potential clients from participating in the MMT program but also influence providers' willingness to work and interact with their clients. Positive interactions between providers and clients are essential for effective client engagement and treatment retention.

Another interesting finding relates to providers' MMT knowledge. We hypothesized that providers with a higher level of MMT knowledge would be more likely to report supportive attitudes toward clients as well as to interact with them. Contrary to our expectation, MMT knowledge was not found to be related to providers' willingness to interact with clients or with their negative attitudes toward drug users. This finding suggests that information alone is not sufficient to transform providers' attitudes or behaviors toward MMT clients, due to its minimal effect on deep-rooted prejudices. The implications for future training and interventions for MMT providers are substantial, which warrants further investigation.

Some limitations of our data should be noted. Data were collected from one province with high drug-use prevalence in China. Providers working at MMT clinics in this area were more likely to be better informed of MMT-related issues than providers from other parts of China. Caution should be exercised in generalizing the findings to different geographic locations. In addition, this study relied entirely on self-reported data, which could heighten issues related to accuracy of recall and veracity. Moreover, this study used a cross-sectional design, which does not allow us to make definite causal inferences. The small sample size also had limitations on how many factors could be controlled in the analyses. Nevertheless, our findings provide enough evidence to warrant the need for intervention and training to address drug use–related negative attitudes among providers, and promote provider–client interactions at MMT settings. Relationships among provider attitudes, provider–client interactions, and client treatment outcomes can be investigated in future studies.

## Conclusion

Service providers are an important link for the successful implementation of MMT programs. Therefore, providers' attitudes toward drug users in general and their interactions with clients may affect efforts to maintain treatment retention and client outcomes. A better understanding of the major factors related to provider–client interactions is a critical step to ensure the success of MMT programs.

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**Table 1**

Demographic Characteristics of Study Participants ($N = 41$)

| | % | *n* |
|---|---|---|
| Gender | | |
| Male | 39.0 | 16 |
| Female | 61.0 | 25 |
| Age | | |
| 35 or less | 29.3 | 12 |
| 36–45 | 31.7 | 13 |
| 46 or older | 39.0 | 16 |
| Years of education | | |
| 12 or less | 41.5 | 17 |
| 13–15 | 31.7 | 13 |
| 16 or more | 26.8 | 11 |
| Profession | | |
| Medical doctor | 46.4 | 19 |
| Nurse/technician/others | 53.6 | 22 |
| Years of medical profession | | |
| 5 or less | 24.4 | 10 |
| 6–15 | 22.0 | 9 |
| 16–25 | 26.8 | 11 |
| 26 or more | 26.8 | 11 |
| Months at MMT clinic | | |
| 12 or less | 17.1 | 7 |
| 13–24 | 29.3 | 12 |
| 25–36 | 26.8 | 11 |
| 37 or more | 26.8 | 11 |

Note: MMT = methadone maintenance treatment.

**Table 2**

Correlation Coefficients Among Selected Variables ($N$ = 41)

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Female | 1.000 | | | | | |
| Age | −0.506*** | | | | | |
| Years of education | 0.274 | −0.462** | | | | |
| Medical doctor | −0.259 | 0.301 | 0.128 | | | |
| MMT knowledge | −0.039 | −0.078 | −0.010 | −0.148 | | |
| Negative attitude toward drug users | −0.377* | 0.086 | −0.149 | 0.341* | −0.042 | |
| Provider–client interaction | 0.343* | −0.109 | 0.170 | −0.223 | 0.152 | −0.542*** |

Note: MMT = methadone maintenance treatment.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

**Table 3**

Results of Multiple Regression Analyses

| | Negative attitudes | | Provider–client interaction | | Provider–client interaction | |
|---|---|---|---|---|---|---|
| | β | *p* value | β | *p* value | β | *p* value |
| Female | −0.384 | .030 | 0.362 | .050 | 0.192 | .283 |
| Age | −0.335 | .089 | 0.246 | .228 | 0.099 | .612 |
| Years of education | −0.245 | .162 | 0.212 | .248 | 0.104 | .547 |
| Medical doctor | 0.368 | .029 | −0.207 | .233 | 0.044 | .794 |
| MMT knowledge | −0.031 | .833 | 0.157 | .314 | 0.142 | .320 |
| Negative attitude toward drug users | | | | | −0.442 | .011 |

Note: β = standardized beta coefficient; MMT = methadone maintenance treatment.