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Effectiveness of Methadone Maintenance Therapy and Improvement in Quality of Life Following a Decade of Implementation

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ABSTRACT

Methadone maintenance therapy has been found to be an effective harm reduction treatment for opioid use disorder. However evidence of its benefits over a longer duration of treatment is limited as most studies focus on its short term benefits. As methadone maintenance therapy reaches a decade since its implementation in Malaysia, this study sought to examine the effectiveness of methadone treatment, change in quality of life among patients since entry to methadone treatment, as well as factors predicting the magnitude of change in quality of life. This study found that methadone maintenance therapy was effective in reducing heroin use, injecting practices and crime, and in improving in social functioning and physical symptoms, but not in reducing sex-related HIV risk-taking behavior. Though patients had a significantly better quality of life at follow-up than at entry to methadone maintenance therapy, the improvement in quality of life was not significantly greater as the duration of treatment increased. Age above 50 years old, human immunodeficiency virus (HIV) positive status and physical symptoms predicted a poorer improvement in quality of life between baseline and follow-up. On the other hand, patients with hepatitis B showed a greater improvement in quality of life in the social relationships domain compared to patients without hepatitis B. In conclusion, methadone maintenance therapy is an effective treatment for opioid use disorder and improves quality of life but its benefits in further improving quality of life beyond a decade of treatment need further evaluation.

1. Introduction

Opioid use disorder is a global problem posing as a major health concern worldwide. The effectiveness of methadone maintenance therapy (MMT) in reducing illicit opiate use (Mattick, Breen, Kimber, & Davoli, 2009), human immunodeficiency virus (HIV) risk behaviors (Fullerton et al., 2014), criminal behaviors (Marsch, 1998) , viral transmission of human immunodeficiency virus (HIV) and hepatitis (MacArthur et al., 2012; Van Den Berg et al., 2007) as well as mortality (Brugal et al., 2005; Langendam, van Brussel, Coutinho, & van Ameijden, 2001) has been well-documented. In addition, methadone therapy was found to improve treatment retention (Amato et al., 2005), employment and family relationship (Sun et al., 2015) as well as quality of life (Padaiga, Subata, & Vanagas, 2007; Wang et al., 2012). Among the Malaysian population, significant reductions in heroin use, HIV risk-taking behavior and health scores were demonstrable after completion of 12 months of methadone therapy (Premila Devi, Azriani, Zahiruddin, Mohd Ariff, & Noor Hashimah, 2012).

Quality of life has been broadly defined as the individuals' perception 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 (World Health Organisation, 1997). Among individuals with opioid use disorder, quality of life is generally poorer compared to the general population as well as individuals suffering from other chronic diseases (Millson et al., 2004). In addition, opiate users have worse physical health scores as compared to depressed patients (Ryan & White, 1996).

Participation of individuals with opioid use disorder in medication-assisted treatment has been observed to yield positive results in quality of life in the short term. Improvement in quality of life was observed even during the first month of methadone treatment (Ponizovsky & Grinshpoon, 2007), which highlights its benefit of having an earlier onset of action as compared to buprenorphine which reached a comparable quality of life more slowly in the same study. Studies have also demonstrated improvement of quality of life over 6 and 12 months of methadone therapy (Chou et al., 2013; Maremmani, Pani, Pacini, & Perugi, 2007; Padaiga et al., 2007). Similar findings of improvement in

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quality of life have been reported among Malaysian patients on methadone therapy for a duration of up to 2 years (Baharom, Hassan, Ali, & Shah, 2012; Lua & Talib, 2012; Musa, Abu Bakar, & Ali Khan, 2012). However, evidence of further improvement of quality of life following a longer duration of methadone therapy has yet to be established.

This is of significant importance as methadone therapy is becoming a long-term treatment modality in light of the increasing understanding of neurobiology of opioid use disorder. With repeated opioid use, long term changes in brain circuits occur, resulting in a risk of relapse of opioid use even after abstinence (Kieffer & Evans, 2002). In view of the chronic course of opioid use disorder, the benefits of methadone therapy in the long term need to be assessed. In Malaysia, the positive impact of methadone therapy on quality of life over a duration of 2 years or less has been established, but whether the quality of life continues to improve, remains static or reduces beyond that duration has not been well-studied.

The cumulative number of drug users in Malaysia was estimated to be 300,241 representing 1.1% of the total population between 1988 and 2006 (Nazar & Ahlam, 2007). In 2014, the number of intravenous drug users was estimated to be 170,000, with opioids being the most commonly used drug (Ministry of Health Malaysia, 2014; National Anti-Drug Agency Malaysia, 2014). Treatment of substance use disorder initially involved enforcement of rehabilitation in detention centers, and later progressing to opioid substitution therapy with the use of buprenorphine since 2001 and the introduction of MMT program in 2005 (Norliza, Norni, Anandjit, & Mohd Fazli, 2014).

The MMT program was first implemented in University Malaya Medical Centre (UMMC) in 2005. Being the center which first implemented the MMT program in Malaysia, there are patients in this center who have been in MMT for as long as 10 years. As MMT reaches a decade since its implementation in Malaysia, it is time to assess the effectiveness of MMT and its impact on quality of life of patients. This study also examined the factors that predict the magnitude of change in quality of life scores between baseline and follow-up.

2. Materials and methods

2.1. Participants and procedure

The MMT program in UMMC consists of three phases, in which patients from phase I were recruited from year 2005 to 2006, patients from phase II were recruited from year 2007 to 2008, and patients from phase III were recruited from year 2009 to 2013. As MMT was started as a pilot project in UMMC, only a limited number of patients were recruited in each phase due to budget constraints (Gill, Sulaiman, & Habil, 2007). The program is strictly governed by national methadone maintenance therapy guidelines, which recommend suitability for treatment, induction, monitoring and follow-up (Ministry of Health Malaysia, 2005). At entry to the program, they were assessed for suitability of methadone treatment and given the Opiate Treatment Index (OTI) and World Health Organization Quality of Life (WHOQOL)-BREF questionnaires to complete. Patients were then given regular follow-up visits at the UMMC psychiatric addiction clinic, except for patients who visit other specialized clinics or those who had to attend the general walk-in clinic as they did not follow their appointment dates. The MMT program in UMMC closely monitors compliance and dose of methadone with urine drug screening test during each follow-up visit. If patients had dropped out and requested to rejoin the program, they would be reassessed for suitability for treatment and may be considered to rejoin the same cohort if they had stopped methadone treatment only for a short duration. They would be considered to join a new phase if they had stopped methadone treatment for a significant duration of time.

Between January 2015 and August 2015, all patients who were still actively receiving methadone treatment from the three phases of the MMT program in UMMC were identified based on their clinic attendance. Ninety six patients were found to be still receiving methadone treatment. Among these patients, those who attended follow-up sessions at the UMMC psychiatric addiction clinic, who were aged 18 years and above, diagnosed with opioid dependence using the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) at entry to methadone maintenance therapy program and who were able to read and understand the Malay or English language adequately well were included in the study. Nearly all the patients in the program consisted of male patients, thus only male patients were included in the study. The large proportion of male patients of methadone maintenance program in our center was consistent with other studies which found that the percentage of male patients on methadone maintenance therapy ranged from 95% to 98% (Baharudin et al., 2013; Lua & Talib, 2012; Musa et al., 2012), and that drug use was more prevalent among men, who made up for 96.8% of the total number of drug users in Malaysia (National Anti-Drug Agency Malaysia, 2014). The exclusion criteria included patients who had dropped out of the methadone maintenance therapy program and patients who had severe behavioral disturbances, severe cognitive impairment or severe intellectual disability. Patients who attended other specialized clinics or general walk-in clinics were also excluded.

Ethics approval was obtained from the medical ethics committee of UMMC (MECID.NO. 20,146–331) before commencement of the study. Patients were given information about the study including purpose of study and confidentiality before consent was obtained.

2.2. Measures

Patients who consented to the study were given a sociodemographic questionnaire to complete, which included information regarding age, ethnicity, marital status, presence of sexual partner, level of education, employment status and type of employment. The patients were then required to complete the Opiate Treatment Index (OTI), which was used to measure drug use, HIV risk-taking behavior, social functioning, criminal behaviors and health (physical health). Higher scores in each domain denote a greater degree of dysfunction in that domain. OTI has been used to assess opioid treatment outcome with good psychometric properties (Darke, Hall, Wodak, Heather, & Ward, 1992). The patients were also asked to complete the World Health Organization Quality of Life (WHOQOL)-BREF which assesses quality of life in four domains namely physical, psychological, social relationships and environment, as well as overall quality of life and general health. WHOQOL-BREF has been translated to the Malay language with satisfactory psychometric properties (Hasanah, Naing, & Rahman, 2003).

Baseline data on OTI and WHOQOL-BREF scores during entry to the methadone maintenance therapy program were obtained from participants' case files to make comparisons with the scores obtained during follow-up anytime between January 2015 and August 2015. Sociodemographic data at baseline and clinical data such as HIV and hepatitis status were also obtained from participants' case files.

2.3. Statistical analysis

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 20 (SPSS, Inc.). Wilcoxon Signed Rank Test was used to compare OTI scores for each domain between baseline and follow-up, while paired t-test was used to compare quality of life scores between baseline and follow-up. Patients were then categorized into 3 different cohorts based on their year of entry to methadone therapy. The first cohort consisted of patients who entered the phase I of the MMT program from 2005 to 2006, the second cohort consisted of those who entered the phase II of the program from 2007 to 2008, and the third cohort consisted of patients who entered phase III of the program from 2009 to 2013. One-way ANOVA was used to compare mean change in quality of life scores between baseline and follow-up for the 3 different cohorts with post-hoc Bonferroni applied for multiple