



Research Paper

Health-related work productivity loss is low for patients in a methadone maintenance program in Vietnam

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ABSTRACT

Background: Data on work productivity lost are an essential component of economic evaluation regarding social issues. However, there has been limited information about the loss of work productivity due to health among patients receiving methadone maintenance treatment (MMT) in Vietnam. The objectives of this study were to explore health-related work productivity loss between urban and rural MMT patients and to identify associated factors.

Methods: A cross-sectional study was conducted in five MMT clinics in Hanoi and Nam Dinh provinces. Work Productivity and Activity Impairment Questionnaire: General Health (WPAI-GH) was used to measure health-related work productivity loss. In addition, data on socio-demographic, health status (measured by EuroQol-5 dimensions-5 levels – EQ-5D-5L, and EQ-Visual analogue scale – EQ-VAS) and substance use were collected. Multivariate Tobit regression was used to identify the potential factors associated with health-related work productivity loss.

Results: Of 1016 patients who participated in the study, 755 (74.6%) were employed. Of those, only 40/755 patients reported missing work due to health problems (5.3%), with the average absenteeism score of 30.6% (SD = 18.5%). Meanwhile, 164/755 respondents (21.7%) reported their impairment during work hours due to health problems. The mean weekly cost of absenteeism was at US\$ 19.6 (SD = 11.8), and the mean weekly presenteeism cost was at US\$ 8.7 (SD = 7.3). After adjusting for socio-economic status, having problems with mobility, usual activities, pain/discomfort, and anxiety/depression; as well as EQ-5D index and EQ-VAS score, were factors associated with work productivity loss due to health.

Conclusion: The current study emphasizes the low degree of health-related work productivity loss, as well as the low rate of work impairment among MMT patients in Vietnamese urban and rural settings. Our study also highlights the necessity of appropriate pain and mental health management as well as vocational training, and the provision of job opportunities to promote the employability of patients taking MMT.

Introduction

Methadone maintenance treatment (MMT) is a popular and efficacious therapy for opioid substitution treatment (Mattick, Breen, Kimber, & Davoli, 2009; Mattick, Breen, Kimber, & Davoli, 2014). In Vietnam, where the HIV epidemic is driven by people who inject drugs (PWIDs), evidence indicates that MMT is a cost-effective intervention, which should be scaled-up as an integral element of HIV/AIDS prevention and control strategies (Tran, Ohinmaa, & Duong, 2012; Tran, Ohinmaa, Duong, Nguyen et al., 2012). Previous research in Vietnam

shows that MMT is beneficial for individuals with opioid dependence as it reduces the frequency of opioid use, HIV-related risk behaviors and crime rates, and it promotes the patients' economic status and quality of life (Hoang et al., 2015; Tran, Nguyen, Nong, & Nguyen, 2016; Tran, Nguyen, Nong, Nguyen, Phan et al., 2016; Tran, Nguyen, Nong, Nguyen, Phan et al., 2016; Tran & Nguyen, 2013a; Tran, Ohinmaa, Duong et al., 2012). However, there is a scarcity of information regarding the effects of MMT on personal work productivity loss, which is an inevitable consequence of opioid addiction (French, Roebuck, & Alexandre, 2001; Richardson, Wood, Li, & Kerr, 2010). Statistics

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showed that in 2011, lost work productivity due to illicit drug misuse cost US\$ 120 billion in the United States; 0.3% GDP in Australia and 0.4% GDP in Canada (International Narcotics Control Board, 2014). In Belgium, Tecco et al. estimated that the work productivity of employees who misused illicit drugs was 30% less than non-drug using employees (Tecco, Bongaerts, & Annemans, 2014). Additionally, the absenteeism of employed drug users was 66% higher than that of non-using employees (House, 2003). Therefore, having some insight into work productivity loss among MMT patients' is critical in order to evaluate the societal impact of the MMT program.

Work productivity loss is an important social indicator for economic evaluation, informing the allocation of constrained resources in healthcare planning (Krol, Brouwer, & Rutten, 2013). Measuring work productivity loss of a person due to a certain disease enables an estimation of the loss of an individual's contribution to society. This indicator varies by illness and across settings (Beck et al., 2011; Braakman-Jansen, Taal, Kuper, & van de Laar, 2012; Ciconelli, Soarez, Kowalski, & Ferraz, 2006; Song et al., 2015), and its cost may outweigh the direct medical cost. Moreover, the cost of presenteeism (presence at work place with reduced working capacity due to illness) is much greater than the cost of absenteeism (absence from work due to illness) (Lin et al., 2013; Mark, Woody, Juday, & Kleber, 2001; Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). Therefore, understanding the magnitude of such phenomenon can aid policy makers and employers in aligning the welfare and support to promote the employees' health condition, and inform an important ingredient of the economic evaluation of health interventions.

The MMT program in Vietnam has expanded rapidly since the first pilot in 2006. In 2016, 251 MMT clinics operated in 58/64 provinces, treating 46,443 patients (Control, 2016) and contributing to a significant reduction in HIV infection rates. By applying a systematic approach, we have published several articles to explore the health outcomes, stigmatization and treatment adherence among MMT patients using a similar dataset (Tran, Nguyen, Nong, & Nguyen, 2016; Tran, Nguyen, Nong, Nguyen, Phan et al., 2016; Tran, Nguyen, Nong, Nguyen, Phan et al., 2016; Tran, Nguyen, Tran, & Latkin, 2018; Tran, Vu et al., 2016). Nevertheless, with the target of 80,000 PWIDs receiving treatment (Control, 2016), more empirical evidence, particularly about the capacity of patients to join the workforce, is required to evaluate the progress of the MMT program in Vietnam, especially with the significant reduction in foreign aids likely in the coming years (Tran et al., 2016a). A previous study conducted by Vuong et al. in a Vietnamese mountainous setting, indicated that the proportion of MMT patients having jobs was more than 90.0%, of which the mean rate of absenteeism and presenteeism were 15.8% and 5.6%, respectively (Nong et al., 2017). However, there is a dearth of evidence about work productivity among MMT patients in urban and rural areas, where different culture and employment patterns exist. This study aimed to explore the health-related work productivity loss between rural and urban MMT patients in Vietnam, and identify associated factors.

Methods

Population and design

A cross-sectional study was conducted from June to August 2013 in Hanoi and Nam Dinh provinces, two HIV epicenters in Northern Vietnam. The participants and settings for this study were described in detail elsewhere (Tran, Nguyen, Nong, & Nguyen, 2016; Tran, Nguyen, Nong, Nguyen, Phan et al., 2016; Tran, Nguyen, Nong, Nguyen, Phan et al., 2016). In summary, we selected five MMT clinics from different levels of the healthcare system (provincial/district) and from urban and rural locations (Tran, Nguyen, Phan, & Latkin, 2015; Tran, Nguyen, Phan, Nguyen, & Latkin, 2015). Table 1 describes the clinic characteristics.

A convenience sampling method was utilized to recruit participants.

All patients who were in the MMT program and presented at the selected clinic during the study period were invited to participate in the study. They were taken to a private room, introduced to the study and asked to provide written informed consents to take part. In total, 1016 patients were recruited to the study, accounting for 80–90% of the sampling frame of each clinic.

Instruments and measurements

We used a structured questionnaire and interviewers included well-trained Public Health Masters' students and experts in the field of substance misuse. We did not involve clinic staff in the study in order to avoid social desirability bias where patients might over-report good behaviors or under-report unfavorable ones.

Health-related work productivity loss

There are two typical approaches to measuring work productivity loss: the human capital approach (HCA) and the friction cost approach (FCA) (Krol & Brouwer, 2014; Shiroywa, Fukuda, Ikeda, & Shimozuma, 2013). It is argued that the FCA is suitable for research involving employers because it comprises employer costs in the cost components. Meanwhile, the HCA is a favorable approach for economic evaluations of social factors, enabling estimates of work productivity loss from the viewpoints of employees (Krol & Brouwer, 2014; Shiroywa et al., 2013).

In this study, we applied the HCA approach to capture work productivity loss due to health by using **Work Productivity and Activity Impairment Questionnaire: General Health (WPAl:GH)**. This instrument is highly reliable and valid, less time-consuming and convenient in the clinical setting (Ciconelli et al., 2006; Lofland, Pizzi, & Frick, 2004; Mattke, Balakrishnan, Bergamo, & Newberry, 2007; Reilly, Zbrozek, & Dukes, 1993). This instrument contains six questions with the recall duration of seven days: Q1 = current employed; Q2 = hours missed from work due to health problems; Q3 = hours missed from work due to other reasons; Q4 = hours actually worked; Q5 = degree that health problems affect productivity while working; and Q6 = degree that health problems affect usual activities (daCosta DiBonaventura, Gupta, Cho, & Mrus, 2012; Reilly et al., 1993; Zhang et al., 2010). The scores for Q5 and Q6 range from 0 to 10 where the value "0" means "the lowest degree" and the value "10" means "the highest degree".

For each patient, the absenteeism score is identified as the percentage of work time missed due to health problems within the last seven days (Reilly et al., 1993; Zhang et al., 2010). This is calculated by the following formula:

$$\text{Absenteeism score} = \text{Q2}/(\text{Q2} + \text{Q4}) \times 100\%$$

Meanwhile, the presenteeism score is defined as the percentage of impairment while working due to health problems within the last seven days, which is defined as:

$$\text{Presenteeism score} = (\text{Q5}/10) \times 100\%$$

Both scores range from 0.0% to 100.0%. In addition, by using US\$ 0.64 as a minimum wage rate per hour in Vietnam (Government, 2016), we computed the cost of absenteeism per week by a formula:

$$\text{Cost of absenteeism (US\$)} = \text{Absenteeism score} \times \text{US\$ } 0.64$$

Meanwhile, the cost of presenteeism per week was calculated by a formula:

$$\text{Cost of presenteeism (US\$)} = (\text{Presenteeism score}/100) \times \text{Q4} \times \text{US\$ } 0.64$$

We also collected data on socio-demographic characteristics (gender, age, marital status, educational attainment and occupation) and monthly household income from all sources. The monthly household income was then classified into five income quintiles (poorest,

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