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Research Paper

Public policy, attitudes and willingness to pay for treatment of substance dependence in Iran

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ABSTRACT

Background: Evaluation of costs and benefits of substance use treatment programs through a standard economic framework is necessary for optimal policy making. However, drug policy making is seldom supported by economic justification. Measurement of willingness to pay is a tool to provide better understanding of intangible substance use treatment outcomes and to help a balanced policy in treatment of substance use between maintenance treatment and abstinence-based approach.

Aim: To assess the reciprocal association between economic indexes and attitudes about substance use and its treatment as indicators of tendency toward the two different treatment.

Method: Willingness to pay for treatment was measured by contingency valuation method among 109 treatment cost payers of which 78 subjects were from outpatient methadone maintenance clinics and 31 were from abstinence-based residential facilities. To analyze predictors of willingness to pay, we used income to capture heterogeneity of purchasing power among subjects. Further, we checked bivariate correlation of different attitudes of cost payers with willingness to pay. In the next step using backward regression equation we tried to reach the best specification of the model. Selected variables include cost payers' attitudes toward substance use and its treatment, effectiveness of treatment, social attitude toward the condition of substance use in Iran, fairness of treatment prices, and government financial support for addiction treatment.

Results: In methadone maintenance clinics the payers' income had a pivotal role in determining willingness to pay for substance use treatment by 50% ($p < 0.001$). On the other hand, in abstinence-based residential facilities positive attitude toward substance use (61%, $p < 0.01$) was the major direct determinant of willingness to pay for treatment. Attitude to public financial support for substance use treatment (55%, $p < 0.01$) and consumption experience (45%, $p < 0.01$) showed an inverse association with WTP in regression equation.

Conclusion: This study expanded the understanding of the nature of payment in different substance use treatment modalities. The suggestion to policy makers is that before taking position on different types of treatment services, it is necessary to pay attention to factors that determine values cost payers put on treatment. In other words, economic indexes, payers' views about substance use and its treatment, and their opinion about effectiveness of substance use treatment programs may jeopardize the success of the policy.

Introduction

Substance use is a public health concern that imposes huge burden, direct and indirect, on the community. In financial terms the burden of substance use includes health-related costs, judicial and punitive costs, and costs related to reduced productivity (Harwood & Bouchery, 2004). For example, in 2007, about 20 million Americans over 12 year, reported recent consumption of illicit substances that imposed a total cost of $193 billion on the society (National Drug Intelligence Center, 2011). In Iran, the magnitude of substance use problem is quite large. Epidemiological data (Khan Ahmadi, 2017) show that in 2017 there were 2,808,000 drug users in Iran. In year 2002 the total budget for supply and demand reduction was about $400 million (Raeeis Dana, 2003), equal to 0.31% of Iran's GDP in that period. According to Mokhtarian (2009) the total cost of substance use in 2001, including direct and indirect costs for a 2.5 million regular consumers and 2.7 million casual users was around $11.7 billion.

As a strategy to reduce high costs of substance use, governments

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have focused on reduction of demand by providing substance use treatment (Patel et al., 2016). Among numerous treatment strategies (Veilleux, Colvin, Anderson, York, & Heinz, 2010), methadone maintenance treatment (MMT) is referred to as the gold standard for substance use treatment (O'Connor, 2005). In a systematic review on cost-benefit analysis of various treatment strategies (Cartwright, 2000), the benefit-to-cost ratio of all strategies has been over one, a finding that was further consolidated indicating a higher economic return by treatment programs.

In 1990s, cost-benefit analysis of substance use treatment came to the attention of researchers (French, Dunlap, Zarkin, McGeary, & McLellan, 1997). Cost-related variables included human resources, supplies and materials, and facilities. The benefits, on the other hand, focused on treatment outcomes such as reduction in the number of substance users, total or per capita consumption of substances, rate of crimes, and prevalence of blood-borne infections, as well as improvement of the quality of life of treated clients. However, calculation of all variables in a reference currency were challenging and time consuming (French, Salome, Sindelar, & McLellan, 2002). In late 1990s, therefore, the economic concept of willingness to pay (WTP) was brought-up onto economic measurement of substance use (Zarkin, Cates, & Bala, 2000). WTP, focuses on the maximum price that a person would be willing to pay for an additional unit of applied product or service (Acemoglu, 2016). WTP measures the intangible outcomes of treatment such as improved social safety and individual wellbeing (Zarkin et al., 2000).

The contingency valuation (CV) method for estimating WTP has been developed since 1980s and tries to estimate how individuals value public goods. In this method subjects are, both directly and indirectly, asked about the maximum price they are willing to pay for a particular service (Mitchell & Carson, 2013), such as health-related interventions (O'Brien & Gafni, 1996). CV has shown to be practical in cost-benefit assessment of substance use treatment (Zarkin et al., 2000). By evaluating regular taxpayers' opinion, WTP has also been shown to represent public views on various substance use treatment strategies (Matheson et al., 2014). In cases that treatment costs are directly paid by the clients or their families, such as in Iran, WTP might more accurately measure the intangible benefits of substance use treatment.

In terms of criminalization vis-à-vis medicalization of substance use, Iran has always suffered an ambivalent policy. Since late 90s, however, substance use treatment has entered a new phase by licensing private MMT clinics (Vazirian, 2003). According to figures released by Iran Drug Control Headquarters, in 2017 the number of those clinics were over 7000 with more than 900,000 registered clients. The official fee for methadone substitution treatment was approximately $32[1] per month, equivalent to 14% of a full-time minimum wage. Coexistent to MMT clinics, some 1280 private abstinence-based residential facilities (RF) provide a four weeks detoxification service, with an annual admission rate of around 400,000 cases. The RF fee in 2017 was $160 for a full course. Although this fee comprises 68% of a full-time minimum wage, theoretically it is expected to be a one time payment. Contrary to MMT as a self referral and voluntary service, RFs services in Iran are often taught under the force of the family or referral by the court (Shamsalinia, Nourozi, Khoshknab, & Farhoudian, 2014). A 2004 Iranian study (Ahary, 2004) revealed that 95% of clients admitted to both types of services were men, with an average age of 35, mostly not graduated from high school. Six months relapse rate in RFs was above 85%, compared to a six months retention rate of 30% (20-70%) for MMT clinics (Hajian, Khirkhah, & Falatoni, 2013; Hosseini et al., 2010; Mohebi, Sargolzei, & Adibi, 2015). As mentioned before, it is often the patient himself or his family and not the public who compensate treatment expenses in the form of out of pocket. Therefore, measurement of WTP in Iranian cost payers seems to be a novelty and a more accurate assessment of intangible benefits of treatment.

[1] 2017 exchange rate IRR40,000 = US$1.

Method and tools

Study design

Our research was an applied descriptive-correlational study on WTP for substance use treatment in Iranian cases. Facilities and cases were recruited according to convenience sampling from two types of treatment programs of MMT and RFs in Tehran during September and October of 2017.

Study participants

The sample size was 109 with a distribution of 78 cases from MMT clinics and 31 cases from RFs. The inclusion criteria included availability of person in charge of paying treatment fees, if different from the client under treatment and agreement to fill and sign a written consent form specifically pledging confidentiality of their information.

Tools

Based on studies on WTP (Matheson et al., 2014; Tang, Liu, Chang, & Chang, 2007; Zarkin et al., 2000), we prepared a questionnaire compatible with substance use circumstances in Iran which would be available upon request. Content validity of the questionnaire (Polit & Beck, 2006) was approved by an expert panel of 9 professionals in the fields of economics, substance use clinical therapy, and substance use research with estimated item content validity index (I-CVI) of 0.78 and average scale content validity index (SCVI/Ave) of 0.90. For reliability assessment, a pilot testing with a sample of 6 was performed with resultant value of Cronbach's alpha of 0.679. The questionnaire covered three areas of a) demographic characteristics, b) attitudes toward substance use and its treatment, and c) WTP for substance use treatment.

For measurement of each attitude we provided a series of descriptions under the main topic and asked participants to provide their opinion on each item on a Likert scale of full agreement to full disagreement. The total score for each attitudinal item was the sum total of scores on each description. The scoring direction of attitudinal variables in the questionnaire was as follows:

(1) A more humane attitude toward substance users received higher scores, while lower scores showed a negative attitude and resentment against substance users and helping them.
(2) Regarding respondents' opinion about current situation of substance use in Iran as a social problem, higher scores represented more a liberal attitude about use of substances with evaluating current conditions as within normal limits.
(3) In order to evaluate attitude of respondents toward different interventions, a positive attitude to harm reduction and MMT was scored higher compared to lower scores for abstinence-based treatment.
(4) For treatments' effectiveness a more positive attitude received higher scores.
(5) Regarding fairness of costs of treatment, we directly scored level of agreement with the costs.
(6) Regarding the outcome of treatment programs, we scored an opinion of higher functioning, productivity, and standards of livings higher than sobriety.

For measurement of experience of substance use, regular use by the respondent scored highest (4), followed by occasional use (3), substance use by other family members (2), and by friends (1). In cases with more than one answer the scores were added up.

Applying CV method for measurement of WTP, the respondent was first asked to choose from a range of suggested figures the highest price beyond which he/she would give up treatment. Then the participant was asked with open-ended questions that how much was the maximum price he/she was willing to pay for substance use treatment.

Data gathering

We conducted a face to face interview method by a trained interviewer. The interview time was around 30 minutes.

Statistical analysis

We believe that the two samples of MMT clinics and RFs could not be analyzed together for two reasons. First, services in the two facilities were different in nature, i.e., residential service versus pharmacological intervention. Second, in most instances in RFs the actual person who paid for treatment was a family member, while in outpatient clinics it was the client himself/herself. Therefore, considering different services and different supply and demand market in maintenance and abstinence-based programs, we recruited two separate regression models. Considering our non-parametric data we also used Kruskal-Wallis and Mann-Whitney statistical tests to examine differences between opposing groups in each given condition. For analyzing predictors of WTP, we used income to capture heterogeneity of purchasing power among subjects. In line with previous studies, we checked bivariate relationships between demographic factors and attitudes of cost payers versus WTP. Using backward regression equation we, further, reached the best specification of the model.

Ethical considerations

Confidentiality of information was pledged by researchers. A written consent form was filled and signed by respondents. The ethics standards of the study was approved by Tehran University of Medical Sciences IRB (Code # 9121457002).

Results

As seen in Table 1 of the total of 109 respondents 95 (87.1%) were male and 14 (12.9%). The average age of respondents was 43 (± 11). The common level of education of respondents was high school. The average monthly income of respondents in 3 months prior to treatment was $371 (± 315). As we thought that respondents might not disclose their income precisely, we used their average surface area of residence as a comparator for household income. The average surface area of residence of respondents was 58 (± 26) square meters. Regarding viewpoint of respondents about the cost of treatment, more than half of respondents in RFs found the costs to be reasonable, none of them thought that spending for treatment was a waste of money, and a common fraction (71%) felt no burden by paying the costs of treatment. On the contrary, the respondents in MMT clinics believed that the costs were unreasonably high and difficult to pay. A half thought that paying for treatment was a waste of money and that it was the responsibility of the state to cover the expenses of treatment. Table 2 shows the comparison of WTP in respondents in favor of and against paying for treatment. Respondents who described the current treatment costs 'reasonable' were of a significantly higher WTP, while payers who stated that they couldn't afford treatment costs or didn't believe in paying for drug use treatment were willing to pay less.

Table 1
Characteristics of payers for substance use treatment, overall and stratified by treatment type.

Variable(s)	Total/mean	MMT clinics	RFs
Characteristics of payers for substance use treatment			
Male Gender (n, %)	95 (87%)	73 (94%)	22 (71%)
Age (year, SD)	43 (± 11)	44 (± 11)	41 (± 10)
Education (High-School and Higher %)	47 (43%)	26 (33%)	21 (68%)
Average Surface Area of Residence (m^2, SD)	58 (± 26)	52 (± 21)	73 (± 30)
Average Monthly Income (US$)	371 (± 315)	313 (± 220)	520 (± 452)
Overall viewpoint of respondents concerning the cost of treatment			
Current costs are reasonable.	22 (20%)	4 (5%)	18 (58%)
It is difficult for me to pay for treatment.	64 (58%)	55 (71%)	9 (29%)
Paying for treatment, is a waste of money.	47 (41%)	47 (47%)	0 (0%)
The state should pay for the treatment of substance use.	48 (44%)	43 (55%)	5 (16%)

Table 2
Comparison of WTP in respondents in favor of and against paying for treatment (Mean Rank Kruskal-Wallis).

	Mean rank		x^2	Significance level
	Yes	No		
Current costs are reasonable.	84.36	47.57	23.945	0.000
It is difficult for me to pay for treatment.	46.11	59.26	17.128	0.000
Paying for treatment, is a waste of money.	39.93	56.72	20.161	0.000
The state should pay for the treatment of substance use.	42.75	57.89	19.152	0.000

Characteristics and attitudes of participants from MMT clinics AND RFs were compared (Table 3). Respondents from MMT clinics were willing to pay as much as $2 (± 1) per day—equal to 18% of their daily income, compared to respondents from RFs who were willing to pay up to $5 (± 2) per day—equal to 30% of their daily income. Also respondents from MMT clinics had a significantly higher experience of substance use. They were significantly more liberal toward substance use and while looking for gaining productivity(rather than just sobriety) as their treatment goal, they are of less satisfaction with their treatment and its costs.

We further compared respondents' WTP according to their gender (as seen in Table 4). While there was no significant difference between male and female respondents economic status, WTP was significantly higher in female respondents. As seen in Table 5 there was a significant inverse correlation between age and WTP. On the contrary, higher education and higher income levels had an association with higher WTP. We also observed a direct correlation between education level and income and attitude towards fairness of treatment costs. Using Spearman test we also examined correlation between experience of substance use and monthly income and attitude toward fairness of treatment costs and WTP. Also we found significant inverse correlation between experience of substance use, income, WTP, and attitude to fairness of treatment.

We investigated probable association between attitudes of respondents, as independent variable, and their WTP, as dependent variable, by performing backward multiple regression analysis. Considering the different nature of payment in RFs and MMT clinics, the analysis of each group is presented separately. For respondents from MMT clinics, the adjusted coefficient of determination indicated that different attitudes account for more than 29% of variations in their WTP. Further, analysis of variance showed our WTP model to have significant predictive value. According to our findings (see Table 6), in MMT clinics the payer's income had a pivotal role (50%) in explanation of changes in WTP. Interestingly, attitudes about necessity of public financial support for treatment, the condition of substance use in the country, and attitude toward effectiveness of treatment were not significantly associated with WTP.

For RFs, on the other hand, the adjusted coefficient of determination indicated that different attitudes account for more than 70% of variations in their WTP. The result of variance analysis also showed a significant predictive value of the WTP regression model. In RFs the attitude of payers toward substance use had a significant association with WTP (61.3%). An inverse association between WTP and necessity of

Table 3
Comparison of participants' characteristics and attitudes between two groups (Mann-Whitney).

Variable	MMT clinics	RFs	z-test	Significance level
WTP for treatment (US$/day)	1.9	5.2	−7.990	0.000
Personal experience of substance use[a] (Score)	69.82	17.71	−7.896	0.000
Positive attitude toward using substances (Score)	298 (± 53)	262 (± 45)	−3.378	0.001
Optimistic opinion concerning condition of substance use in Iran (Score)	158 (± 27)	170 (± 32)	−2.272	0.023
Positive attitude toward treatment approach (Score)	91 (± 23)	102 (± 17)	−2.547	0.011
Positive attitude toward MMT (Score)	141 (± 38)	186 (± 36)	−5.054	0.000
Optimistic opinion about effectiveness of substance use treatment (Score)	136 (± 19)	146 (± 16)	−2.302	0.021
Positive opinion about fairness of costs of treatment (Score)	101 (± 24)	121 (± 25)	−2.967	0.003
Expected goal for treatment (Score)	139 (± 16)	124 (± 17)	−4.025	0.000

[a] Personal experience includes present or past experience of substance use and/or family members who were substance users.

public financial support for treatment (55%) and consumption experience (45.8%) was also observed. Payers' income, attitude toward condition of substance use in the country, and positive attitude about MMT showed no association with WTP.

Discussion

As substance use diminishes normal functioning of the person, substance use treatment would, therefore, turn into a normal good. Iran's ministry of health has fixed the MMT package at $32 per month. In practice, however, treatment charges are calculated according to daily dose of methadone as 1 to 2 cents per mg of methadone. In the current study, the average daily dose of methadone was 72 (± 20) mg that would cost the patients between 75 cents and $1. Alternately, the official registration fee for a four weeks abstinence-based residential service is $160 ($5.3 per day). Based on our observation, however, the actual payment by clients for the four weeks program was around $110. Apparently, both types of services charge below the official tariffs because of the oversaturated market and strong competition between service providers. Furthermore, according to official data the average occupancy rate of residential programs is 65%. Despite the oversupply of treatment services, however, MMT and residential service charges are equal to 14% and 46% of official minimum wage, respectively. Therefore, the cost of substance use treatment would not be that little in the household basket of goods to be ignored. Hence, WTP appears to be an important factor in using treatment services.

While there was no gender-based significant difference in average monthly income and average accommodation surface area, the current study showed that women were willing to pay higher prices for substance use treatment. Therefore, it may be inferred that economical conditions did not play a role in different WTP in men and women. While this finding is consistent with a previous study (Matheson et al., 2014), yet another study failed to observe such a difference (Zarkin et al., 2000). Perhaps psychological differences between the two sexes and specially the caring role of women in the family have played a part in this regard. Concerning demographic characteristics, there was an inverse correlation between the payers' age and their WTP for treatment, a finding in accordance with a previous study (Zarkin et al., 2000). We noticed, however, that in MMT clinics the treatment cost was mainly paid by clients themselves, while in RFs the cost was mainly paid by close family members. The inverse correlation between decreasing of WTP and age might be attributed to a growing helplessness in cost payers as time passes by. Similar to previous studies

Table 5
Bivariate correlation(Spearman Kendall Test) between participants' characteristics, attitudes, and willingness to pay.

Variable(s)	Correlation coefficient	Significance level
Age vs. WTP	−0.445	0.000
Education level vs. Income	0.186	0.018
Education level vs. WTP	0.241	0.001
Income vs. WTP	0.286	0.000
Education level vs. Attitude to fairness of treatment costs	212	0.037
Attitude to fairness of treatment costs vs. WTP	0.281	0.005
Experience of substance use vs. Income	−0.220	0.014
Experience of substance use vs. WTP	−0.570	0.000
Experience of substance use vs. Attitude to fairness of treatment cost	−0.173	0.039

(Matheson et al., 2014; Zarkin et al., 2000), yet another demographic factor that showed a direct correlation with WTP was level of education of people who paid for treatment. Interestingly, we observed that higher education showed a direct correlation with the payers' agreement with fairness of treatment costs and with their income. Also there was a strong correlation between attitude toward fairness of treatment costs and WTP. Therefore, one could conclude that higher education among cost payers increases WTP for treatment by improving income status and increasing the individual's payment power as well as adopting more positive attitude toward fairness of treatment costs.

In order to explain our findings about experience with consumption of substances, the observation that WTP is higher among relatives who are sensitive to substance dealership in the neighborhood (i.e.: in RFs) compared to respondents in MMT clinics (i.e.: the very people who used substances) appears to be in agreement with previous finding (Zarkin et al., 2000) that observing of substances being sold in the neighborhood would increase WTP for treatment but the experience of observing individuals using substances in the neighborhood would not affect WTP. On the other hand, a Norwegian study (Olsen, Rogeberg, & Stavem, 2012) showed that a higher severity index for smoking and fewer number of friends who smoke were positively correlated with WTP for smoking cessation. In our study, however, we found a reverse correlation between consumption experience and WTP. In other words, as the patient's consumption experience mounts, his WTP declines. Although it has been argued (Matheson et al., 2014) that the person's volume of experience with using substances results in a more

Table 4
Comparison between income of male and female respondents and their WTP (Mann-Whitney).

Variable(s)	Male	Female	z-test	Significance level
Average surface area of residence (m^2)	58 (± 27)	53 (± 12)	−0.566	0.572
Average monthly income (US$)	381 (± 328)	280 (± 129)	−0.809	0.419
WTP for treatment (US$/day)	3 (± 2)	4 (± 2)	−2.231	0.026

Table 6
Regression model for WTP based on payers' income and attitudes in MMT clinics and RFs.

Adjusted coefficient	Significance level	Variable(s)	Non-standard coefficients		Beta standard	T	Significance level
			B	Standard error			
Regression model for MMT clinics							
0.292	0.000	Constant	4235.66	12,614.109	−3.378	0.836	0.406
		Income	0.001	0.000	0.500	4.494	0.000
		Optimistic opinion concerning condition of substance use in Iran	10.628	8.678	0.133	1.183	0.242
		Optimistic opinion about effectiveness of substance use treatment	−22.554	12.242	−0.207	−1.842	0.071
		The state should pay for the treatment of substance use	26.461	19.416	0.150	1.363	0.178
Regression model for RFs							
0.706	0.000	Constant	58,030.937	17,851.401		3.251	0.007
		Income	0.001	0.001	0.260	1.551	0.147
		Optimistic opinion concerning condition of substance use in Iran	−57.297	38.118	−0.344	−1.975	0.072
		Positive attitude toward using substances	83.550	22.445	0.613	3.722	0.003
		The state should pay for the treatment of substance use	−353.012	110.527	−0.550	−3.193	0/008
		Positive attitude toward MMT	−43.562	30.276	−0.228	−1.434	0.177
		Experience of Substance Use	−819.329	294.831	−0.458	−2.779	0.017

sympathetic attitude toward people who use substances, the findings of our study indicate that in our sample the economic indexes such as payers' income status was the determinant factor for WTP, rather than experience factor.

We found a sharp contrast between respondents at MMT clinics (who were mainly the substance users themselves) and respondents at RFs (who were mainly close relatives of substance users) concerning their attitude toward using substances. The former group expressed a liberal attitude toward using substances and did not consider the use of relatively softer substances such as opium or opium tincture as a risky behavior and regarded substance use as a lifestyle as long as it did not harm others. Their counterparts in residential facilities, however, had a more conservative and prohibitionist attitude. According to the latter group, substance dependence was a self-induced (or at least partially self-induced) problem. We believe that a relatively higher WTP in the latter group springs from their ethical-ideological approach to substance use as a sin, and therefore their belief that it can be cured, albeit with experience of mortification suffering, which is the case in residential programs (Shamsalinia et al., 2014). Therefore, rather than being just for treatment purposes, a higher WTP in this group appears to be for punishment, too. This inference could also explain the fact that for payers at RFs a return to functionality and productivity was not a priority. Interestingly, this contrast of attitudes and its role in WTP is in concordance with a recent study (Makarenko et al., 2017) where in addition to patient income, attitudes toward opioid substitution therapy played a role in WTP. Therefore, despite of a higher income of payers in RFs, their positive attitude toward abstinence-based treatment is less likely based on affordability calculations of a one time payment in residential programs. In MMT clinics, however, the majority of payers (70.5%) have stated that they cannot afford treatment cost and in order to pay it, they have to reduce their necessary expenses.

According to the results of regression analysis of data from MMT clinics, where generally the clients are the payers of treatment costs, the average monthly income is the most influential factor in WTP. This result is concordant with a study among Iranian MMT clinics which shows that patient's willingness to withdraw is directly related to affordability (Shamsalinia et al., 2017). Interestingly, a negative social attitude to substitution treatment and the unfriendly attitude of the government toward this type of treatment, appear to have played no role in lower WTP in respondents from MMT clinics. The finding that respondents from MMT clinics had a significantly stronger belief that substance use treatment should be compensated or subsidized by the government is concordant with our interpretation above. In line with a 2014 study that found that mental health improvement in MMT clients diminishes past the first year of treatment and they become disenfranchised with MMT (Fingleton, Matheson, & Jaffray, 2015), our finding that WTP in MMT clients was solely cost-driven, we purpose that compensation or subsidization of MMT by the state might compensate a delayed regaining of functionality in clients. However, the regression model suggests that there are other factors influencing attitudes that are not considered in this model and need to be investigated in future studies.

WTP for abstinence-based residential programs, however, appears to be mainly associated with the payers' attitude toward substance use. The more severe the dependence, the attitude of close relatives turns into anger and blaming the index person. Therefore, they show a higher WTP for a con-fining model of treatment such as RF (Shamsalinia et al., 2014). However, the more the payer finds the index person responsible for his/her substance dependence, a lower WTP. Therefore, one might conclude that although the public is in favor of confinement of substance users, they prefer not to take a personal role in helping substance users (i.e.: lower WTP) and leave the problem in the hands of the state to compensate or subsidize treatment costs, a finding in line with previous studies (Zarkin et al., 2000). Although the role of consumption experience and its impact on WTP in different studies seems to be contradictory (Olsen et al., 2012; Petrie, Doran, & Shakeshaft, 2011; Zarkin et al., 2000), we found that with a positive history of experiencing substance use, WTP declines in people who are paying for treatment of another person.

Focusing on limitations of our study, our sample was recruited from Tehran metropolitan area. Therefore, generalization of the results has to be done with caution. Another limitation might be related to availability of cost payers. As we followed an opportunistic sampling method, generalization of the findings to potential respondents who were unavailable for interview despite our request, must raise further caution. As our sampling was from treatment facilities, our findings may not reflect WTP characteristics of people who do not believe in treatment as a solution to substance use problem .Also the validity of comparing WTP by people already in treatment with WTP by relatives of clients who are not personally in treatment should be considered as a limitation. Yet another limitation of this study might relate to specific structural aspects of WTP studies, such as information effect, target population effect, scope effect, and question order effect (Tang et al., 2007) As we are reporting the first ever attempt to estimate WTP for substance use treatment in Iran, we believe our findings have to further be examined.

Conclusion

Despite the dominance of supply reduction policy in Iran, substance use treatment is a well-established market that is regulated and influenced by economic policies of the government. In this very first study of the kind, we tried to highlight economic characteristics of substance use treatment market by measuring WTP. Although WTP in both models of treatment was higher than current prices, the high share of treatment costs from total family income makes it evident that families can hardly afford treatment costs, considering frequent relapses and need to purchase treatment repeatedly. We were, however, able to show that from a WTP point of view, MMT and abstinence-base residential treatment do not represent opposite treatment services on the same spectrum. Rather, it appears that they function in two different modes. WTP for MMT is a product of economic rules and fully cost-driven. But WTP for abstinence-based residential treatment is basically associated with opinions and attitudes.

Declaration of Competing Interest

None.

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Supplementary materials

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