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The Role of Gender in Factors Associated With Addiction Treatment Satisfaction Among Long-Term Opioid Users

Kirsten Marchand, BSc, Heather Palis, BA, Defen Peng, PhD, Jill Fikowski, BA, Scott Harrison, MA, Patricia Spittal, PhD, Martin T. Schechter, PhD, MD, and Eugenia Oviedo-Joekes, PhD

Objectives: To identify factors associated with Opioid Agonist Treatment (OAT) satisfaction and to determine whether these relationships are gender specific.

Methods: This study was based on data collected in a cross-sectional study among long-term opioid-dependent individuals (n = 160; 46.3% women). Participants completed the Client Satisfaction Questionnaire in reference to OAT episodes. Sociodemographic, illicit substance use, health, and addiction treatment history data were collected. Multivariable linear regression was used to determine the relationship between these variables and treatment satisfaction. To explore the potential role of gender in these identified relationships stratified multivariable models were tested. Additional open-ended questions regarding positive and negative perceptions of treatment were collected, and a thematic analysis was conducted.

Results: In the multivariable linear regression model, participants who were older, of Aboriginal ancestry, and currently receiving OAT had higher OAT satisfaction scores, whereas participants who had methadone dose preferences of 30 mg or less had lower OAT satisfaction. In stratified analyses among women, the relationship between preferred methadone dose and current OAT remained significantly associated with satisfaction. Open-ended positive and negative perceptions complemented and provided further valuable data to interpret these identified relationships.

Conclusions: To our knowledge, this is the first study to explore the potential role of gender in factors associated with OAT satisfaction. These findings provide valuable information to health care providers working in OAT settings regarding how to address women and men's OAT needs and improve treatment satisfaction.

Key Words: gender-based analysis, opioid agonist treatment satisfaction, opioid dependence, participant narratives

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Opioid dependence is a chronic, relapsing condition (Cami and Farre, 2003) estimated to affect approximately 1 million individuals in North America (Degenhardt et al., 2014). Commonly manifested as a dependence on illicit opioids such as heroin, opioid dependence is associated with a number of personal risks (eg, fatal overdoses and social disintegration) and burdens for the community resulting from public health and criminal justice costs (Ward et al., 1999; Nutt et al., 2010). Interventions directed at abstinence have shown to be successful in approximately 30% of patients after receiving 1 year of treatment (De Jong et al., 2007). This poor response along with increasing rates of infectious diseases among injection drug users led to the implementation of Opioid Agonist Treatment (OAT) (Cavalieri and Riley, 2012). The most widespread, evidence-based form of OAT is methadone maintenance treatment (Van den Brink and Haasen, 2006).

Engagement in OAT is associated with positive outcomes, including reduced illicit substance use and improved psychosocial conditions (Mattick et al., 2009). However, adherence and retention decline over time in treatment (Nosyk et al., 2010), and some patients continue to use illicit opioids despite adhering to OAT (Termorshuizen et al., 2005). To identify improvement opportunities in OAT, researchers have studied participants' treatment needs, barriers, and overall satisfaction (Marchand et al., 2011; Deering et al., 2012; Trujols et al., 2012; Trujols et al., 2014).

Among patients accessing OAT, a small and expanding body of research has examined factors associated with treatment satisfaction (Barry et al., 2007; Deering et al., 2011; Marchand et al., 2011; Deering et al., 2012; Trujols et al., 2012), as well as the positive relationship between treatment satisfaction and treatment outcomes (Villafranca et al., 2006; Kelly et al., 2010; Marchand et al., 2011). For example, it has been shown that participants with higher psychosocial functioning and better health are more satisfied with OAT (Marchand et al., 2011; Deering et al., 2012; Trujols et al., 2012). Regarding the relationship between satisfaction and OAT

From the Centre for Health Evaluation & Outcome Sciences (KM, HP, DP, JF, PS, MTS, EOJ), Providence Health Care, St Paul's Hospital, Vancouver, BC, Canada; and School of Population and Public Health (KM, HP, JF, PS, MTS, EOJ) and School of Nursing (SH), University of British Columbia, Vancouver, BC, Canada.

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Send correspondence and reprint requests to Dr Eugenia Oviedo-Joekes, PhD, Centre for Health Evaluation & Outcome Sciences, Providence Health Care, St Paul's Hospital, 575–1081 Burrard St, Vancouver, BC V6Z 1Y6, Canada. E-mail: eugenia@cheos.ubc.ca.

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outcomes, studies have reported an association between treatment satisfaction and reduced substance use (Kelly et al., 2010) and treatment retention (Villafranca et al., 2006; Kelly et al., 2010; Marchand et al., 2011).

In these studies, satisfaction has primarily been measured using questionnaires, which have yielded high satisfaction scores (Trujols et al., 2014). Evidence from qualitative studies examining participant perceptions of OAT unveils other associations not reflected in such high scores. These studies have identified participant's perceptions of improvement opportunities, barriers, and unmet treatment needs (Stone and Fletcher, 2003; Deering et al., 2011; Sanders et al., 2013; Oviedo-Joekes et al., 2014). For example, participants have emphasized the importance of positive interactions with health care providers (Deering et al., 2011; Oviedo-Joekes et al., 2014), preferences for take-home or split methadone doses (Stone and Fletcher, 2003), and perceived societal shame and stigma attached to the use of methadone (Sanders et al., 2013). These findings suggest that participant narratives may strengthen the interpretation and clinical relevance of treatment satisfaction (Trujols et al., 2014).

Research identifying participant barriers in general addiction treatment settings has demonstrated that men and women experience unique challenges in accessing and adhering to treatment (Jones et al., 2005; Ad Hoc Working Group on Women Mental Health Mental Illness and Addictions, 2006; Roberts and Ogborne, 1999). Studies investigating men and women's satisfaction and perceptions of treatment may be beneficial to understand these gender-specific barriers. However, such evidence among patients receiving OAT is currently very limited. Among the few studies reporting this relationship, results showed that women were more satisfied than men (Perez de Los Cobos et al., 2005; Barry et al., 2007) or that gender was not a predictor of treatment satisfaction (Marchand et al., 2011; Deering et al., 2012). These inconsistencies may reflect the sensitivity of the selected measures to capture the unique perceptions and needs of men and women.

This study investigated long-term opioid-dependent men and women's satisfaction and perceptions of treatment. The study had 2 specific aims—first, to identify factors associated with current or recent OAT satisfaction, and second to determine whether these relationships were gender specific. Such evidence may influence clinical practices and improve patient experiences with OAT.

METHODS

Design, Setting, and Participants

Gender Matters in the Health of Long-term Opioid Users (GeMa) was a cross-sectional study with qualitative and quantitative methods conducted between December 2011 and June 2013. The study tested gender-specific patterns of drug use, victimization, health, and access to care among long-term opioid-dependent men and women. GeMa received ethical approval from the Providence Health Care/University of British Columbia research ethics board.

A trained research team who had experience working with the target population carried out all study procedures in a confidential research office. Participants were recruited through forming partnerships with agencies (eg, Providence Health Care and Drug Users Resource Centre) serving the target population and snowball sampling. To be eligible, participants were adults (19 years of age or older is adult age in British Columbia, Canada), residing in greater Vancouver metropolitan area, with at least 5 years of illicit opioid use, regular use of illicit opioids during the prior 6 months, and 1 or more episodes of OAT in the lifetime. Before carrying out study procedures, the informed consent form was reviewed and informed consent was obtained. Study procedures and questionnaires required approximately 3 hours to complete.

Measures

Dependent Variable

The Client Satisfaction Questionnaire (CSQ-8) (Larsen et al., 1979) was used to measure satisfaction with OAT. This questionnaire has been previously used in mental health and addictions services (De Wilde and Hendriks, 2005; Villafranca et al., 2006; Marchand et al., 2011) and assesses global satisfaction with treatment. Using a 4-point likert scale, participants were asked to rate, for example, "to what extent has the program met your needs?" and "how would you rate the quality of the service you received?" A global score ranging from 8 to 32 is computed, higher scores represent higher overall satisfaction. Participants were also asked to describe up to 3 positive and up to 3 negative aspects of the received treatment.

As current engagement in OAT was not an inclusion criteria in this study, participants completed the CSQ-8 in reference to their current or last OAT episode. A questionnaire preceding the CSQ-8 asked participants if they were currently receiving OAT, and if not, how many months ago was their last OAT episode. A total of 45 (28.1%) participants were not currently engaged in OAT and were instructed to complete the CSQ-8 in reference to their last OAT episode.

Independent Variables

The GeMa study included standardized questionnaires previously used in the study population with complementary questions to strengthen the gender- and sex-based analyses. For the lifetime and prior 30-day reference periods, covariates included the following topics. Where applicable, the standardized questionnaire used is also identified—(1) sociodemographic characteristics; (2) lifetime and prior 30-day illicit substance use (European Addiction Severity Index; McLellan et al., 1992); (3) physical health (Opioid Treatment Index; Darke et al., 1992); (4) mental health (Symptom Checklist-90-R; Derogatis and Cleary, 1977); (5) health-related quality of life (Euroqol; van der Zanden et al., 2006); and (6) utilization of addiction treatment.

Analysis

Statistical Analysis of Treatment Satisfaction

On the basis of previous studies using this questionnaire in similar populations (De Wilde and Hendriks, 2005; Villafranca et al., 2006; Marchand et al., 2011), it was expected and determined that CSQ-8 scores were positively skewed. For

descriptive statistics, the CSQ-8 score was categorized into quartiles on the basis of its distribution. Quartiles and their respective CSQ-8 ranges were Q1 = 8 to 17; Q2 = 18 to 22; Q3 = 23 to 26; Q4 = 27 to 32. Bivariate analysis for the relationship between continuous covariates and CSQ-8 quartiles was described with mean ± standard deviation (SD) or median (interquartile range) and compared with analysis of variance or the Kruskal-Wallis test, as appropriate. Categorization of the continuous variable "the number of days receiving OAT in the prior 30 days" occurred due to the variable's distribution (eg, bimodal) and clinical interpretation (ie, currently engaged in OAT in treatment compared with not engaged) of prior research (Kelly et al., 2010; Marchand et al., 2011). Categorical variables were described by frequencies and percentages and compared using the Fischer exact test or the χ^2 test.

Multivariable linear regression was used to test covariates independently associated with higher treatment satisfaction. As suggested by CSQ-8 developers (Attkisson, 2012), a square transformation was used for the CSQ-8 scores to fit the skewed variable to the multivariable model (transformed CSQ-8 scores range from 64 to 1024). To explore potential similarities and differences in the relationship between independent variables and treatment satisfaction by gender, stratified multivariable linear regression models were built for women and men.

Stepwise selection and backward elimination procedures were used for all regression models; variables were selected from the descriptive statistics to enter and stay in the model on the basis of a significance value of 0.15. The total number of participants in the final model was 159 (1 excluded due to missing data). The full model was adjusted for age, gender, and ethnicity, and stratified models were adjusted by age and ethnicity. As women in this study were significantly younger than men, an interaction between age and gender was also tested but was not significant. Missing data were assumed to be missing at random. All tests were 2-sided and a P value <0.05 was considered statistically significant. All statistical analyses were performed using SAS version 9.4 (SAS, 2012).

Analysis of Open-Ended Comments on Treatment Perceptions

The lead author read the positive and negative perceptions of treatment closely and then transferred the comments to NVivo (QSR International Ltd, 2008). Thematic analysis of these comments took place in stages. First, each comment was assigned a theme on the basis of its semantic content. During this stage, the gender attribute was not accessed to reduce potential bias during this initial free coding process. Second, the content of each free code was further refined to ensure congruency between content and assigned theme. Next, themes were clustered, defined, and the content of the clusters was reviewed again to refine coding and ensure that content in the free codes accurately reflected the concept of the cluster. Finally, the clusters were transitioned to 7 major positive and 6 major negative themes. After reviewing the content of the major themes, minor themes were refined further and some were reclassified according to a hierarchy within the major themes.

RESULTS

Descriptive and bivariate statistics are presented in Table 1. The average age of participants was 44.9 (SD = 9.5) years, and 46.3% of participants were women. Among the sociodemographic characteristics, treatment satisfaction was significantly associated with prior month stable housing. Regarding drug use history, participants' average age of first illicit heroin injection was 24.9 (SD = 9.4) years. The primary illicit opioid used in the prior 30 days was heroin (90.0%), although illicit morphine (51.9%) and hydromorphone (56.9%) were also reported (data not shown). The relationship between prior month days of illicit opioid use and satisfaction was significant; participants in the lower satisfaction groups had a higher median days of illicit opioid use compared with those in the higher satisfaction group. Participants had multiple addiction treatment attempts, with a median history of 3.0 (interquartile range = 2.0, 5.0) episodes of methadone maintenance treatment. Regarding methadone dose treatment preferences, there was a significantly higher proportion of participants who preferred between 0 and 39 mg in the lower CSQ-8 quartile groups. The primary form of addiction treatment accessed in the prior month was OAT, reported by 71.9% of participants. Compared with participants not currently engaged in OAT, the proportion of participants currently engaged was higher among those in the higher CSQ-8 quartile groups. Also, the median number of days participants received OAT in the prior month was higher among those in the higher CSQ-8 quartile groups compared with participants in the lower CSQ-8 groups. Regarding health and psychosocial functioning, only the family and social functioning score was significantly associated with satisfaction.

Results from the full multivariable linear regression model (Table 2) showed that older participants, participants of Aboriginal ancestry, and participants currently in OAT had significantly higher OAT satisfaction scores. Participants with an ideal dose of less than or equal to 39 mg had lower satisfaction OAT. Results of the gender-specific multivariable regression models determined that the relationship between ideal dose and current OAT engagement were dependent on gender and significant among women only.

A total of 142 participants (n = 76 men; n = 66 women) provided 329 positive references (Table 3). More women commented on the accessibility of the treatment, the regularity of contact with the health care system, positive interactions with staff, and associated favorable health outcomes. Men emphasized improvements in psychosocial functioning, including reduced criminal involvement, and improved sense of stability and financial situation. Women's references under this theme primarily included general improvements to daily living conditions, social benefits, and relationships with other clients. For both men and women, the fewest positive references made were about the relationship between OAT and reduced illicit drug use.

Table 4 shows the themes that emerged from the 398 negative references, made by 154 participants (n = 84 men). Approximately 30% of the references reflected common concerns about health outcomes and functioning while receiving OAT. The specific types of concerns in this theme were also associated with gender. For women there were more

TABLE 1. Sociodemographic, Drug Use, Health, and Addiction Treatment History of GeMa Participants by Client Satisfaction Score Percentile for Most Recent or Current Opioid Agonist Treatment

	Total Med [IQR]/N (%)	CSQ Q1 Med [IQR]/N (%)	CSQ Q2 Med [IQR]/N (%)	CSQ Q3 Med [IQR]/N (%)	CSQ Q4 Med [IQR]/N (%)
Sample	160 (100)	39 (24.4)	42 (26.2)	35 (21.9)	44 (27.5)
Sociodemographic characteristics					
Women[§]	74 (46.3)	19 (48.7)	13 (31.0)	20 (57.1)	22 (50.0)
Age, y	44.9 ± 9.5	42.6 ± 9.5	46.0 ± 9.8	43.6 ± 9.8	47.1 ± 8.7
Aboriginal ancestry[‖]	48 (30.0)	10 (25.6)	12 (28.6)	9 (25.7)	17 (38.6)
High school certificate or less	104 (65.0)	25 (64.1)	27 (64.3)	23 (65.7)	29 (65.9)
Currently has an intimate partner	74 (46.5)	19 (48.7)	20 (47.6)	15 (42.9)	20 (45.5)
Any nonstable housing in prior 3 y[¶]	98 (62.0)	22 (56.4)	22 (55.0)	26 (74.3)	28 (63.6)
Any street housing in prior 3 y[#]	34 (21.3)	12 (30.8)	5 (11.9)	6 (17.1)	11 (25.0)
Any stable housing in prior 3 y	95 (60.5)	29 (74.4)	23 (57.5)	20 (58.8)	23 (52.3)
Prior month stable housing[*]	68 (42.5)	19 (48.7)	24 (57.1)	11 (31.4)	14 (31.8)
Lifetime and prior month drug use					
Age first illicit heroin injection	24.9 ± 9.4	25.1 ± 8.2	24.6 ± 10.4	24.9 ± 9.2	25.1 ± 9.8
Ever use cocaine regularly[*,**]	129 (83.7)	29 (75.6)	36 (86.7)	28 (74.4)	36 (81.6)
Prior month days using illicit opioids[†,††]	30.0 [21.5, 30.0]	30.0 [30.0, 30.0]	30.0 [24.0.0, 30.0]	29.0 [20.0, 30.0]	26.5 [10.0, 30.0]
Prior month days using cocaine[‡‡]	8.0 [0.0, 30.0]	8.0 [1.0, 30.0]	3.0 [0.0, 30.0]	8.0 [0.0, 30.0]	10.0 [0.0, 30.0]
Addiction treatment history					
Prior addiction treatment attempts					
Ever accessed abstinence-based[§§]	140 (87.5)	37 (94.9)	36 (87.8)	29 (82.9)	38 (86.4)
Ever accessed counselling[‖‖]	100 (62.5)	26 (66.7)	24 (58.5)	24 (68.6)	26 (60.5)
Number of OAT attempts	3.0 [2.0, 5.0]	3.0 [2.0, 5.0]	3.0 [2.0, 5.0]	3.0 [2.0, 6.0]	3.0 [2.0, 5.0]
Age first OAT	34.0 [26.0, 40.0]	30.0 [26.0, 38.0]	38.0 [26.0, 41.0]	32.0 [24.0, 38.0]	35.5 [29.0, 42.0]
Months of regular OAT treatment	36.0 [19.0, 84.0]	29.0 [12.0, 60.0]	36.0 [18.0, 72.0]	60.0 [24.0, 72.0]	60.0 [20.0, 120.0]
Methadone dose preferences[‡,¶¶]					
Ideal dose is ≤39 mg	61 (38.1)	25 (64.1)	16 (38.1)	11 (31.4)	9 (20.5)
Ideal dose is >40 mg	87 (54.4)	11 (28.2)	21 (50.0)	22 (62.9)	33 (75.0)
Unsure	12 (7.5)	3 (7.7)	5 (11.9)	2 (5.7)	2 (4.5)
Prior month addiction treatment access					
Currently receiving OAT[†]	115 (71.9)	18 (46.2)	29 (69.0)	30 (85.7)	38 (86.4)
Days of OAT[‡]	30.0 [0.0, 30.0]	0.0 [0.0, 30.0]	30.0 [0.0, 30.0]	30.0 [22.0, 30.0]	30.0 [23.5, 30.0]
Health					
SCL-90 GSI[##]	0.7 [0.3, 1.4]	0.8 [0.2, 1.5]	0.6 [0.2, 1.3]	0.7 [0.3, 1.6]	0.6 [0.2, 1.2]
EQ5D[*,***]	0.8 [0.7, 1.0]	0.8 [0.6, 1.0]	0.8 [0.7, 1.0]	0.8 [0.7, 1.0]	0.8 [0.7, 1.0]
OTI[†††]	22.9 ± 12.0	23.0 ± 12.0	23.6 ± 11.5	23.8 ± 13.9	21.5 ± 11.0
EuropASI Family Score[*,‡‡‡]	0.0 [0.0, 0.0]	0.0 [0.0, 0.2]	0.0 [0.0, 0.0]	0.0 [0.0, 0.4]	0.0 [0.0, 0.0]

Statistics are *P* values for ANOVA/Kruskal-Wallis test or χ^2-Fischer exact test: $^*P < 0.05$; $\dagger P < 0.01$; $\ddagger P < 0.001$.

§Participants asked which gender they most identify with: men, n = 85; women, n = 74; unsure gender, n = 1. The participant responding unsure to this question was included in all descriptive statistics but not the multivariable linear regression analysis.

‖Any Aboriginal ancestry refers to self-reported First Nations, Inuit, or Metis ancestry.

¶Nonstable housing is single resident occupancy hotel rooms with restrictions or couch surfing.

#Street housing is defined as outdoor, vehicles or in public places.

**N = 152; 8 missing: 2 missing in CSQ-Q1, 1 missing in CSQ-Q2, 1 missing in CSQ-Q3, and 4 missing in CSQ-Q4. Missing due to addition of question about lifetime cocaine use.

††Includes illicit heroin, hydromorphone, morphine, and speedball (a combination of opioids and stimulants).

‡‡Includes cocaine powder and crack cocaine.

§§N = 159; 1 missing in CSQ-Q2 group.

‖‖N = 158; 1 missing in each of CSQ-Q2 and CSQ-Q4 groups.

¶¶Response to question: "if you could choose your ideal methadone dose, how many milligrams would you like?" Response options included an open-ended dose in milligram units (mean = 136.5 mg; SD = 63.9; IQR = 100.0, 170.0) or an unsure category. Responses were categorized to investigate the relationship between ideal dose (titrating doses, maintenance doses, and unsure) and satisfaction.

##Symptom Checklist–90 Global Severity Index Score ranges from 0 to 4; higher score is indicative of higher number of symptoms.

***Euroquol with Canadian weights scores range from 0 to 1; higher scores are indicative of better health status.

†††Opioid Treatment Index total health scores range from 0 to 51, higher score is indicative of more physical conditions.

‡‡‡European Addiction Severity Index-Family and Psychosocial functioning subscale score ranges from 0 to 1; higher scores are indicative of worse functioning.

CSQ, Client Satisfaction Questionnaire; IQR, interquartile range; MMT, methadone maintenance treatment; OAT, Opioid Agonist Treatment; Q1, quartile 1 (scores range from 8 to 17); Q2, quartile 2 (scores range from 18 to 22); Q3, quartile 3 (scores range from 23 to 26); Q4, quartile 4 (scores range from 27 to 32); SD, standard deviation.

references toward emotional and physical health outcomes, such as depression, nausea, and bone deterioration. Men's references were focused on loss of general functioning, such as energy and libido. These outcomes were distinct from the disadvantages of the medication, expressed similarly by men and women in reference to the side effects (eg, sweating) of the medication. Men made more references to the hindrance of the treatment logistics, including the frequency of physician and pharmacy visits. Concerns regarding the loss of autonomy and control over the treatment were expressed similarly between men and women. The most commonly referenced issue in this broader theme for men reflected the challenges of traveling and feeling dependent on the prescribing physician and pharmacy for daily dispensation. Slightly more women described feeling dissatisfied with the lack of control and input into methadone dose increases.

TABLE 2. Multivariable Linear Regression Model of Factors Associated With Opioid Agonist Treatment Satisfaction for the Full Sample and by Gender

	Women and Men		Women		Men	
	Coefficient	**SE**	**Coefficient**	**SE**	**Coefficient**	**SE**
Intercept	141.885	98.677	244.927*	122.630	59.826	137.598
Age, y	5.209*	1.930	3.000	2.508	8.024*	2.805
Gender						
Men	−14.690	37.612	—	—	–	–
Women	Ref.	Ref.	—	—	–	–
Ethnicity						
Aboriginal ancestry	97.369†	42.393	42.541	48.996	131.220	67.899
Non-Aboriginal ancestry	Reference	Reference	Reference	Reference	—	—
Methadone dose preferences§						
Ideal dose is ≤39 mg	−147.686*	37.631	−255.689‡	50.218	—	—
Ideal dose is >40 mg	Reference	Reference	Reference	Reference	—	—
Currently receiving OAT						
Yes	192.815‡	41.284	267.213‡	53.876	—	—
No	Reference	Reference	Reference	Reference	—	—

Full model (n = 159), adjusted by age, gender, and ethnicity. Stratified model for women (n = 74), adjusted by age and ethnicity. Stratified model for men (n = 85), adjusted by age and ethnicity. Model coefficients based on the transformed CSQ score. Original CSQ scale ranges from 8 to 32 and the square transformed CSQ ranges from 64 to 1024. Interpretation of the coefficients for continuous independent variables: when the predictor increases (or decreases) 1 unit, CSQ-8 score will increase (or decrease) $0.5\beta^*(\text{CSQ at baseline})^{(-1)}$. For example, for a participant who had CSQ = 8, when age increases 1 unit, CSQ will increase $0.326 = 0.5^*5.209/8$ to $8.326 = 8 + 0.326$. Interpretation of the coefficients for categorical independent variables: compared with the selected reference group, the group of interest has a $\text{CSQ} = 0.5\beta^*(\text{CSQ of reference group at baseline})^{(-1)}$ higher than the reference group. For example, a participant currently receiving OAT who had a CSQ = 8 will have a $\text{CSQ} = 0.5^*(192.815)/8 = 12.05 + 8 = 20.05$ higher CSQ compared with a participant not currently receiving OAT.

*$P < 0.01$; †$P < 0.05$; ‡$P < 0.001$.

§n = 12 participants reported that they were unsure about their preferred methadone dose. This category was entered into the full model and is not displayed ($\beta = -75.331$, SE = 69.216, $P = 0.278$).

OAT, Opioid Agonist Treatment.

DISCUSSION

This study investigated gender-specific factors associated with addiction treatment perceptions and satisfaction among long-term opioid-dependent people. Participant's sociodemographic characteristics, age, and Aboriginal ancestry, specifically, were independently associated with satisfaction. Program-related features, including methadone dose preferences and current engagement in OAT, were also associated with satisfaction. Gender-specific quantitative analyses revealed that treatment-related features were independently associated with OAT satisfaction among women only. Participants' narratives complemented and explained the quantitative associations.

The independent association between current OAT engagement and satisfaction supports prior prospective studies, which have determined that satisfaction positively predicts long-term engagement in OAT (Villafranca et al., 2006;

TABLE 3. Major Themes From the Open-Ended Questions Regarding Positive Perceptions of Treatment and the Number of References Made by Gender

Theme	**Theme Description**	**Total*** **(n = 329)**	**Women†** **(n = 158)**	**Men†** **(n = 171)**
Benefits of the medication	Methadone/suboxone reduces withdrawal symptoms and the lengthy holding time is beneficial.	114 (34.7)	49 (31.0)	65 (38.0)
Health access and health outcomes	The treatment encourages participants to have regular contact with health care and improves physical and mental health.	61 (18.5)	35 (22.2)	26 (15.2)
Crime and financial situations	The treatment reduces daily stressors and criminal involvement and improves financial situation.	60 (18.2)	15 (9.5)	45 (26.3)
Logistics	The treatment is accessible, convenient, and delivered at no cost.	41 (12.5)	25 (15.8)	16 (9.4)
Illicit drug use	Methadone/suboxone supports participants to gain some control over illicit drug use and reduces the frequency of use.	20 (6.1)	11 (7.0)	9 (5.3)
Treatment approach and model of care	The consistency of the program, supportive staff, and access to additional health and rehabilitation services is very positive.	17 (5.2)	9 (5.7)	8 (4.7)
Interpersonal relationships	The treatment is associated with improved interpersonal relationships with family and friends and the forming of new relationships.	16 (4.9)	14 (8.9)	2 (1.2)

*Data shown are the total number (%) of references made by participants for each specified theme.

†Data shown are the total number of references (%) made by a woman or man.

TABLE 4. Major Themes of the Open-Ended Questions Regarding Negative Perceptions of Treatment and the Number of References Made by Gender

Theme	Theme Description	Total* (n = 398)	Women† (n = 189)	Men† (n = 209)
Health outcomes and functioning	The treatment is associated with adverse mental (eg, ''emotional numbness'') and physical health outcomes (eg, weight gain and bone deterioration) and reduces overall functioning.	118 (29.6)	66 (34.9)	52 (24.9)
Disadvantages of the medication	Methadone/suboxone has a bad taste, is considered addictive, and has various negative side effects, including withdrawal if missed doses, sweating, and lethargy.	78 (19.6)	41 (21.7)	37 (17.7)
Logistics	Barriers to treatment adherence include the frequency of physician and pharmacy visits, wait times, and general time demands of the treatment.	64 (16.1)	21 (11.1)	43 (20.6)
Choice and control	Participants feel they lack freedom and autonomy in treatment decisions. Comments reflect perceived lack of control in dose changes, duration of treatment episodes, travel and take-away doses.	63 (15.8)	29 (15.3)	34 (16.3)
Delivery of care and treatment approach	Negative interactions with health care staff result from perceived stigma and lack of trust and open communication. Overall general support and comprehensive services were also identified as weaknesses.	58 (14.6)	28 (14.8)	30 (14.4)
Unmet needs	Great variability in the types of unmet needs; the need for effective pain management was most commonly referenced.	17 (4.3)	4 (2.1)	13 (6.2)

*Data shown are the total number (%) of references made by participants for each specified theme.
†Data shown are the total number of references (%) made by a woman or man.

Kelly et al., 2010; Marchand et al., 2011). For example, using a signal detection analysis to identify predictors of retention to OAT in a community-based sample, Villafranca et al. (2006) identified treatment satisfaction as a significant program-related predictor of 1-year rates of OAT engagement. In light of additional evidence demonstrating that prolonged engagement and adherence to OAT is associated with greater health and psychosocial benefits (Amato et al., 2005; Trafton et al., 2007), these findings further emphasize the value of considering patient's experiences with OAT. Incorporating OAT perceptions among patients who are both in and out of OAT may offer evidence that improves the delivery of this model of care (Sanders et al., 2013).

The association between treatment satisfaction and preferred methadone dose supports the importance of individualized and patient-centered treatment plans. Participants with a preferred methadone dose of 39 mg or less had lower satisfaction scores than those who preferred doses greater than 40 mg. This relationship may be explained by findings from participant's negative perceptions, which revealed their dissatisfaction with the lack of control over dose changes. Perceived dose inadequacy (Roux et al., 2014) and dissatisfaction with dose control (Deering et al., 2012; Trujols et al., 2012) have been previously identified among patients engaged in OAT. This may suggest that participants desire to be more involved in dose decisions has relevance for overall satisfaction with OAT. It may also indicate participant's desire to discontinue treatment (Lenne et al., 2001; Stancliff et al., 2002; Winstock et al., 2011). For example, there is some evidence suggesting that a high proportion of methadone patients have interest in discontinuing treatment and perceive higher doses to be a barrier to achieving this (Stancliff et al., 2002). Future studies might consider how patient's perceptions of dose adequacy and treatment goals could be integrated to improve patient's satisfaction.

The stratified gender-based analysis revealed important gender-specific factors associated with treatment perceptions. For men, older age and Aboriginal ancestry were associated with higher satisfaction. The relationship between older age and higher OAT satisfaction was identified previously, and it was suggested that older patients may have lower expectations or may be more adaptable to treatment regimens (Marchand et al., 2011). Research regarding Aboriginal ancestry and satisfaction with OAT is relatively limited, and 1 previous study (Marchand et al., 2011) conducted in a similar population found that Aboriginal participants were less satisfied than non-Aboriginal. Although not the focus of this study, a preliminary analysis of Aboriginal participant's positive narratives in this study showed that the main themes emphasized were reduced withdrawal symptoms, the ease of treatment access and positive outcomes including stability, and improved financial situations. Further research should continue to explore this in efforts to incorporate more culturally informed approaches.

The high satisfaction scores obtained in this study were expected due to the 1-dimensional factor structure of the CSQ-8 (Marchand et al., 2011; Trujols et al., 2014). Anticipating this, this study was strengthened by the integration of open-ended questions regarding participant's positive and negative perceptions of OAT. This data greatly improved the interpretation of these high satisfaction scores and allowed us to identify important gender-specific factors in the

evaluation of OAT perceptions. Consistent with other studies (Deering et al., 2012; Oviedo-Joekes et al., 2014), we learned that women's evaluation of OAT was rooted in their relationships with health care providers, other clients, and improved family relationships. On the contrary, men's perceptions of OAT and its effectiveness were reflected in their reduced engagement in crime and their improved financial situations. With the general lack of patient-informed satisfaction measures that can capture the complexity of this population's treatment needs, preferences, and experiences (Trujols et al., 2012; Trujols et al., 2014), the open comments offer 1 possible method to strengthen and expand evidence regarding the role of gender in factors associated with OAT satisfaction. It is recommended that future studies integrate similar methods to ensure that clinical practices are informed by evidence from quantitative data and participant narratives.

It should be emphasized that the independent association between current OAT engagement and satisfaction does not imply a causal relationship (ie, participant's lower satisfaction caused them to be out of OAT at the time of the study). The cross-sectional design allowed us to identify an association between these 2 constructs, for which there are many plausible explanations (Kelly et al., 2010). For example, few participants suggested that OAT reduced their illicit opioid use. Thus, 1 possible explanation, supported by these narratives, is that participants may have left OAT because of continuing illicit opioid use, and this was reflected in their lower satisfaction. Nevertheless, the association between current OAT engagement and satisfaction emphasizes the value of patient perceptions for improving our understanding of their treatment needs and preferences.

CONCLUSIONS

To our knowledge, this is the first study to explore gender-specific factors associated with OAT satisfaction. The identified influence of gender on preferred methadone dose and current engagement in OAT provides valuable information to health care providers working in OAT settings regarding how to address women and men's needs and improve satisfaction. Moreover, evidence from participant's positive and negative perceptions of treatment proved highly beneficial to disentangle the quantitative results. Combined, these findings emphasize the importance of incorporating patient perspectives of OAT for improving patient outcomes.

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