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**Research Paper** 

### Patient perception of methadone dose adequacy in methadone maintenance treatment: The role of perceived participation in dosage decisions

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#### ABSTRACT

*Objective:* In clinical practice, methadone maintenance treatment (MMT) entails tailoring the methadone dose to the patient's specific needs, thereby individualizing treatment. The aim of this study was to identify the independent factors that may significantly explain methadone dose adequacy from the patient's perspective.

*Method:* Secondary analysis of data collected in a treatment satisfaction survey carried out among a representative sample of MMT patients (n = 122) from the region of La Rioja (Spain). As part of the original study protocol, participants completed a comprehensive battery to assess satisfaction with MMT, psychological distress, opinion of methadone as a medication, participation in dosage decisions, and perception of dose adequacy.

*Results:* Multivariate binary logistic regression showed that the only variable independently associated with the likelihood of a patient perceiving methadone dose as inadequate was the variable *perceived*-*participation in methadone dosage decisions* (OR=0.538, 95% CI=0.349–0.828).

*Conclusion:* Patient participation in methadone dosage decisions was predictive of perceived adequacy of methadone dose beyond the contribution of other socio-demographic, clinical, and MMT variables.

*Practice implications:* Patient participation in methadone dosage decision-making is valuable for developing a genuinely patient-centred MMT.

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#### 1. Introduction

Methadone maintenance treatment (MMT) is a widely-used, evidence-based, first-line treatment for opioid addiction [1]. In addition, MMT is considered to be a key and quintessential element of harm reduction interventions and policies [2]. Numerous studies have shown that the methadone dose is a critical factor in the effectiveness of MMT [3,4]. Although clinical guidelines recommend methadone doses ranging from 60 to

http://dx.doi.org/10.1016/j.pec.2016.12.001 0738-3991/© 2016 Elsevier Ireland Ltd. All rights reserved. 100 mg/day [1,5–7], the range of effective methadone doses for individual patients is actually much wider [1,8–11]. In fact, the value of utilizing individualized, flexible dosing strategies is supported by rigorous evidence [12].

In clinical practice, the methadone dose is routinely tailored to the patient's specific needs, thus providing individualized treatment [13]. Briefly, the clinical decision-making process to determine this individually optimal dose of methadone involves assessing the degree to which such dose is effective —without significantly inducing sedative effects— in (i) preventing withdrawal signs/symptoms for 24 hours or longer, (ii) eliminating craving, and (iii) blocking the reinforcing effects of non-prescribed opioids [14,15]. Patient participation in methadone dosage decisions [16–20] is a pivotal component of this individualizing

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process. As put succinctly and clearly by Torrens [21] a few years ago, "Asking the patient's opinion about his/her prescribed dose of methadone is, for the time being, the best way to adjust the maintenance dose". However, patients are not always consulted about the adequacy of the prescribed dose. This lack of participation in dose selection may negatively impact patient perceptions of MMT [22,23], thereby hindering treatment retention and effectiveness [16,22].

This study aims to identify the independent factors that significantly explain MMT patients' perception of methadone dose adequacy. We hypothesized that patients who perceived that they had little input into methadone dosage decisions would be more likely to view the methadone dose as non-optimal.

#### 2. Method

This study is a secondary analysis of data collected in a treatment satisfaction survey carried out among a representative sample of methadone-maintained patients (n = 123) from the region of La Rioja (Spain) [24]. Details regarding the participants' socio-demographic and clinical characteristics, features of MMT and methadone treatment centres, as well as information about the design and methodology of the parent study have been fully described elsewhere [24]. The present study included participants with complete data for the relevant variable (i.e., patient-perceived adequacy of methadone dose).

#### 2.1. Setting and participants

The main aim of MMT in La Rioja and elsewhere in Spain is harm reduction [2]. Methadone doses are individualized based on the patient's clinical course. The induction and early stabilization phase begins with starting doses ranging from 10 to 40 mg depending on tolerance levels, with dose increased by 5 to 10 mg every 3 to 5 days [25,26]. Further dose adjustments during the maintenance phase are made as necessary. There are no restrictions on dose levels or treatment duration.

Participants were 122 methadone-maintained, heroin-dependent patients (25.4% women) with a mean age of 38.8 years (SD = 7.6) who had received MMT at their respective centres for at least the previous 3 months. The average duration of the current MMT episode was 40.8 months (SD = 43.6). The mean daily methadone dose was 64.6 mg/d (SD = 33.0, range: 6–230).

#### 2.2. Measures

## 2.2.1. Satisfaction with MMT, opinion of methadone as a medication, and psychological distress

Patient satisfaction with MMT was assessed with the Verona Service Satisfaction Scale for Methadone Treatment (VSSS-MT) [27]. As in previous studies conducted by our research group [28–30], the following single-item measure was employed to assess the patients' opinion of methadone as a medication: "Taking into account your overall experience, what is your impression about methadone as a medication for maintenance treatment of heroin dependence?" Response options were: 1 = terrible, 2 = mostly dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = mostly satisfied, and 5 = excellent. Finally, psychological distress was measured using the General Health Questionnaire–28 (GHQ-28) [31,32].

#### 2.2.2. Perception of methadone dose adequacy

The Visual Analogue Scale of Methadone Dose (VAS-MD) [28] was employed to assess patient perception of the adequacy of their methadone dose. VAS-MD includes a vertical line divided by a horizontal dash into two 10-cm segments. At this midpoint level

the "=" symbol is shown, together with the words 'same dose'. Moreover, the symbols "+" and "-" are shown at the upper and lower line limits, together with the words 'dose increase' and 'dose reduction', respectively. The analogue meaning of the two 10-cm segments is illustrated with two shaded arrows situated parallel to the segments; the shading is progressive, with the darker areas at the outer extremes of the arrows. Thus, an increase or reduction of the methadone dose is represented by arrows pointing, respectively, up or down, and the magnitude of the desired changes is indicated by the intensity of shading [28]. Instructions to participants to complete the VAS-MD were as follows: "Please indicate with a horizontal mark on the continuous line to what extent you would like to increase (+) or to reduce (-) your current daily methadone dose. If you prefer not to modify your dose, please place a mark at 'same dose' (=)". The mark at this midpoint level indicates optimal dose adjustment from the patient's perspective and is scored as 0 [28]. Marks made above or below the midpoint are scored from >0 to 10 and positively or negatively, depending on whether they are made on the top or bottom segment of the scale. Patients who indicate a desire to raise or lower their methadone dose (i.e., VAS-MD  $\neq$  0) can be grouped into a single category (i.e., patients perceiving methadone dose as inadequate) to perform a categorical analysis.

#### 2.2.3. Perceived participation in methadone dosage decisions

Following previous studies carried out by our group [28,30], perceived participation in methadone dosage decisions was assessed with the following two questions: "Does the centre's staff keep you informed about changes in your methadone dose?" (1 = never, 2 = very rarely, 3 = sometimes, 4 = almost always, and 5 = always) and "Do you think that your opinion has an influence on staff decisions to modify the methadone dose you take?" (1 = not at all, 2 = a little, 3 = somewhat, 4 = quite a lot, and 5 = a lot). A composite score providing a global rating was obtained by averaging these two items.

#### 2.3. Data analyses

VAS-MD data were summarized as the absolute frequency and percentage of patients perceiving the methadone dose as adequate or inadequate. Wherever appropriate,  $\chi^2$ -tests and unpaired Student's *t*-tests were conducted to test for differences between patient groups according to perceived adequacy of methadone dose (VAS-MD = 0 vs. VAS-MD  $\neq$  0). Finally, a multivariate binary logistic regression analysis was carried out to identify variables independently associated with the likelihood of perceiving methadone as inadequate. Only those variables found to be significant at an alpha level of 0.20 [33] in the previous bivariate analyses were incorporated in the logistic regression analysis, which was performed using the enter method as the variable-selection procedure. The IBM SPSS statistical package, version 22 (IBM Corp., Armonk, NY, USA) was used for all analyses.

#### 3. Results

Categorical analysis of VAS-MD showed that 58.2% of participants perceived their methadone dose as inadequate (too low [4.1% of cases] or too high [54.1%]), whereas 41.8% considered their dose to be adequate (VAS-MD score = 0). Table 1 shows the main socio-demographic, clinical, and treatment characteristics according to patients' perceived adequacy of methadone dose (i.e., adequate vs. inadequate). Compared to patients who felt the methadone dose was inadequate, patients who perceived the dose to be adequate (i) were significantly older at onset of heroin use, (ii) had a more positive opinion of methadone as a medication, (iii) reported having significantly greater participation in dosage

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