



# Diversion of Methadone and Buprenorphine from Opioid Substitution Treatment: The Importance of Patients' Attitudes and Norms <sup>☆, ☆, ☆, ☆</sup>



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## ABSTRACT

**Aims:** Methadone and buprenorphine diversion by patients in opioid substitution treatment (OST) is a poorly understood phenomenon. We study the norms and attitudes on diversion among OST patients, including the role these norms and attitudes play as diversion risk factors. We also study whether perceived quality of care, social bonds to treatment staff, and deterrence can be associated with diversion.

**Methods:** Structured interviews were conducted with 411 patients from eleven OST programs. In total, 280 interviews were done on site by the researchers, while 131 interviews were conducted through peer interviewing by specially trained patients. The data was analyzed through frequency- and averages-calculations, cross-tabulations, and logistic regression analysis.

**Results:** Most patients consider diversion as mostly positive (83.7%), morally right (76.8%), and without any significant risk of detection (66.9%). Individual differences in norms and risk perceptions may play a role in explaining variations in diversion; patients who consider it right to share medication with friends report higher treatment-episode diversion than other patients (OR 1.455,  $p = 0.016$ ). Patients who perceive control measures as effective report lower diversion than other patients (OR = 0.655,  $p = 0.013$ ). Furthermore, data indicate that patients who are satisfied with the care and service are less prone to engage in diversion. Social bonds with treatment staff seem to be less importance.

**Conclusions:** The norm system described by patients resemble Bourgois' 'moral economy of sharing' concept—not sharing drugs with friends in withdrawal is considered unethical. Efforts to decrease diversion may focus on lifestyle-changing interventions, and reducing black market demand for illicit medications by expanding access to treatment.

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## 1. Introduction

Diversion of methadone and buprenorphine from opioid substitution treatment (OST) to the illicit drug market – the selling or sharing of medication by patients – is a controversial and poorly understood phenomenon. The aim of this article is to deepen the analysis of diversion by studying the norms in relation to and attitudes toward diversion among OST patients, including the role these norms and attitudes play as risk factors for diversion. We also study whether perceived quality of care, social bonds to treatment staff, and deterrence can be associated with diversion.

Moreover, we will investigate the patients' stated motives for selling or giving away medication. The analysis is based on hypotheses derived from Ajzen's theory of planned behavior (Ajzen, 1991, 2001) and social bonds theory. We will elaborate on this shortly, but first a brief review of previous research on diversion.

### 1.1. Previous research on diversion

The well-documented positive effects of OST – decreased mortality and morbidity, reduced criminality and illicit drug use (Amato, Minozzi, Davoli, & Vecchi, 2011; Mattick, Breen, Kimber, & Davoli, 2009; Mattick, Kimber, Breen, & Davoli, 2008) – have in several countries been vitiated by an increase in methadone- and buprenorphine-related fatalities among drug users outside treatment (Bernard et al., 2012; Fugelstad, Stenbacka, Leifman, Nylander, & Thiblin, 2007; Strang, Hall, Hickman, & Bird, 2010). However, research on diversion has been sparse, particularly when it comes to the supply side. Results from U.S., Australian, and British cross-sectional studies are partly contradictory, although some patterns can be identified (Dale-Perera, Goulão, & Stöver, 2012; Duffy & Baldwin, 2012; Spunt, Hunt, Lipton, & Goldsmith, 1986; Winstock & Lea, 2010; Winstock, Lea, & Sheridan, 2008).

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The risk of diversion appears to be higher for buprenorphine than for methadone (Winstock & Lea, 2010; Winstock et al., 2008). A higher degree of supervision has been associated with a reduced risk of diversion in a few studies (Dale-Perera et al., 2012; Duffy & Baldwin, 2012), while other studies showed no such connection (Spunt et al., 1986; Winstock et al., 2008). Higher dosage levels have not been associated with any increased risk of diversion (Duffy & Baldwin, 2012).

Few individual and social risk factors have been identified. An increased risk has been demonstrated for patients with experience of illicit use of the substances (Winstock & Lea, 2010; Winstock et al., 2008), as well as for patients who injected the prescribed substance during ongoing treatment (Winstock et al., 2008).

In a previous article – based on a cross-sectional study of 411 OST-patients in Southern Sweden – we presented several new and significant findings (Johnson & Richert, 2015). Through an innovative methodological strategy whereby we compared two methods of data gathering – researcher interviews and peer interviews (privileged access interviewing) – we were able to show that previous research, in all likelihood, has underestimated the extent of diversion activities. Self-reported diversion proved to be considerably higher in peer interviews than in researcher interviews. The number of patients who stated that they at some point had sold or shared was two to three times higher than in previous cross-sectional studies.

We were also able to point to several links and social risk factors which have not been identified in previous research. The likelihood of diversion was higher for patients on mono-buprenorphine than for methadone-patients. Current drug-use increased the risk of diversion, as did mainly socializing with active drug users. Having had patients as the main source of illicit methadone or buprenorphine prior to treatment was another risk factor. No association was found between diversion and demographic factors (age, gender, country of birth, marital status, education), dose levels, or dispensing procedures.

## 1.2. Theory and hypotheses

Previous research on diversion has been descriptive in nature and lacking a clear theoretical foundation. In this article, we examine two theoretical hypotheses.

Ajzen's *theory of planned behavior* is a psychological theory about the link between attitudes and behavior (Ajzen, 1991, 2001). According to this theory, intentional action is a function of three factors: (1) behavioral beliefs and attitude toward behavior, (2) normative beliefs and subjective norms, and (3) control beliefs and perceived behavioral control. In this context, attitude toward behavior 'reflects the individual's global positive or negative evaluations of performing a particular behavior', while subjective norms 'refer to the individual's perceptions of general social pressure to perform (or not to perform) the behavior' (Armitage & Conner, 2001, p. 474). That is, if an individual perceives that a specific behavior has positive consequences (attitude toward behavior), if the behavior is supported by the norms prevailing among the individual's friends and in his/her social network (subjective norms), and if the individual considers the behavior as relatively easy to perform, or at least not presenting any major obstacles (perceived behavioral control), then this results in a high behavioral intention. The theory postulates that individuals with high behavioral intention are more likely to perform the behavior in question, which has been confirmed in several meta-studies.

Translated to our area: if diversion and illicit use of methadone and buprenorphine are primarily perceived as having positive consequences, if it is seen as ethically correct to sell or share with other drug users, and if the control measures of the program are seen as inefficient, then a high diversion intention will result. Our hypothesis is, therefore, that patients who strongly hold these types of opinions and attitudes are more prone to diversion.

The significance of social bonds for engaging in criminality or other deviant behavior has been the object of an extensive criminological

debate since the 1960s, primarily among proponents of various forms of control theories. One major empirical result from this research is that weak social bonds to society are associated with increased risk of deviant behavior (Gottfredson & Hirschi, 1990; Hirshi, 1969; Sampson & Laub, 1990). Social bonds and trustful relationships are crucial for the possibility of influencing people's attitudes and norms. In this way, social bonds are relevant to the theory of planned behavior, since behavior change requires changes in attitudes and norms. We want to examine the significance of social bonds to treatment staff for the risk of diversion. Our hypothesis is that patients with good relations to treatment staff are less likely to engage in diversion. In this context, we also propose the hypothesis that patients who are satisfied with the care and service in their programs are less likely to engage in diversion.

## 2. Methodology

### 2.1. Participants, recruitment and non-participation

Structured interviews with a total of 411 OST patients were conducted between May and December of 2012. We recruited participants from eleven OST programs in five cities and towns in Southern Sweden. All participants had been enrolled in OST for at least four weeks. The participant group is described in Table 1.

We used two different data-gathering methods: on-site interviews ( $n = 280$ ) carried out by researchers and peer interviews ( $n = 131$ ) done by patients. The aim of this approach was to test the hypothesis that peer-interviewers, by virtue of being 'insiders' with personal experience of both drug use and treatment, would be able to obtain more honest and forthright answers to sensitive questions. As pointed out

**Table 1**  
Study sample and total population – a brief comparison.

Variable	Study sample ( $n = 411$ )	Total population ( $n = 1006$ )
Age, average (standard deviation)	39.4 (sd)	39.8
Gender (male)	74.7%	75.2%
Native country (Sweden)	81.0%	
Education		
Primary education (9 years), not completed	8.3%	
Primary education	39.2%	
High school	42.6%	
Higher education	10.0%	
Number of years of regular opiate-use (standard deviation)	9.9 (6.7)	
Medication		
Methadone	53.3%	51.5%
Mono-buprenorphine	27.3%	28.8%
Buprenorphine–naloxone	19.5%	19.7%
Average dosage, mg (standard deviation)		
Methadone	99.3 (28.9)	103.1
Mono-buprenorphine	19.0 (4.4)	19.44
Buprenorphine–naloxone	18.8 (5.1)	18.9
Previous OST	36.3%	
Length of treatment		
≤6 months	24.2%	
6–12 months	15.2%	
1–3 years	33.3%	
>3 years	27.4%	
Dispensing procedures		
5–7 days/week	34.5%	21.4%
2–4 days/week	36.3%	35.8%
1 day/week or more seldom	29.2%	42.8%
Have used any illicit drug in the past month	46.3%	
Primary socializing		
Alone	23.1%	
Family/friends without current drug issues	57.7%	
Family/friends with current drug issues	19.2%	
Have had patients as the main source for illicit methadone/buprenorphine	62.9%	

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