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Frequency and factors associated with providing injection initiation assistance in Tallinn, Estonia

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ABSTRACT

Injection drug use is expanding in numerous regions in the world. Persons who inject drugs (PWID) play an important role encouraging new persons into injecting, by providing injection initiation assistance ("assisting" behaviors) and stimulating interest in injection ("promoting" behaviors).

Objectives: To describe the prevalence of assisting and promoting behaviors, and to identify factors associated with assisting, among PWID in Tallinn, Estonia.

Methods: In 2016, PWID were recruited through respondent-driven sampling (RDS), interviewed, and HIV tested. RDS weights were used to estimate the prevalence of assisting and promoting behaviors and, in multivariable regression modeling, to identify factors associated with assisting.

Results: Among 299 PWID recruited, 13.7% had ever assisted a non-PWID with their first injection. Regarding past-six-month promoting behaviors: 9.4% talked positively about injecting to non-PWID, 16.2% injected in front of non-PWID, and 0.6% offered to help with a first injection. Significant predictors of ever assisting with a first injection included: gender (men: aOR 6.31, 95% CI 2.02—19.74); age (30 years or younger: aOR 3.89, 95% CI 1.40—10.16); receptive sharing of syringes or needles (aOR 4.73, 95% CI 1.32—16.98); ever testing for HIV (aOR 8.44, 95% CI 1.15—62.07); and having peers who helped someone with their first injection (aOR 3.44, 95% CI 1.31—9.03).

Conclusion: Demographic and drug-use related factors are associated with having initiated someone into injecting. Interventions targeting PWID and non-PWID are needed to prevent injection initiation.

1. Introduction

Injection drug use (IDU) is an important driver of the HIV and HCV epidemics worldwide. It is also a significant source of other morbidities (non-lethal overdose, attempted suicide, skin and soft tissue infections) and mortality. While over the last decades, IDU has generally been declining in Western Europe and North American countries (Roy et al., 2016), it has increased in Eastern European countries (Harrison and Blonigen, 2017). In several Eastern European countries, prevalence estimates for injection drug use are high (EMCDDA, 2010). Additionally, new IDU epidemics have occurred in Asia (i.e., Vietnam and Pakistan) (Giang et al., 2013), Africa (Reid, 2009; Samo et al., 2013) and in Eastern Europe (Niaz, 2013).

According to a global review of injection drug use and HIV epidemiology at a regional level, the prevalence of injection drug use varied from 0.09% (95% UI 0.07–0.11) in South Asia to 1.30% (0.71–2.15) in eastern Europe (Degenhardt et al., 2017). In Estonia, as in several other Eastern European countries, the high prevalence of persons who inject drugs (PWID) is coupled with high HIV prevalence among PWID (Degenhardt et al., 2017), with estimates ranging from 40% to 90% (Platt et al., 2006; Uusküla et al., 2015). A recent study conducted in Tallinn, Estonia's capital and largest city, revealed that new injectors (PWID injecting no longer than three years) exhibited both substantial rates of high-risk behavior and an HIV prevalence of about 20% (Uusküla et al., 2017).

A recent systematic review of interventions to prevent the initiation of injection drug use documented a scarcity of data and called for increased research and development of strategies to prevent IDU initiation (Werb et al., 2013; Werb et al., 2016).

Importantly, although it is possible to learn to inject oneself without the help of PWID, this is difficult and rare (Crofts et al., 1996; Doherty et al., 2000; Day et al., 2005; Kermode et al., 2007; Rotondi et al., 2014). Among samples of experienced injectors, the proportion who have ever helped with first injections has ranged from 14 percent

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(Hamida et al., 2018) to 47 percent (Bluthenthal et al., 2014; Crofts et al., 1996; Day et al., 2005; Hunt et al., 1998; Rhodes et al., 2011), although in one study this rate was 69 percent (Kermode et al., 2007). These data suggest that a minority of PWIDs help with others' first injection, yet account for the great majority of incident injection drug use episodes. Accordingly, identifying PWID who are most likely to provide injection initiation assistance, and the contexts that contribute to these behaviors, ought to be important public health concerns.

Initiation into IDU from the perspective of the initiate has been well studied (Werb et al., 2013; Guise et al., 2017), but data are more limited on the predictors and perspectives of experienced PWID assisting novices with their first injections. Studies of those who help with first injections have shown that assisting is associated with various demographic factors (Crofts et al., 1996; Hamida et al., 2018; Kermode et al., 2007; Rotondi et al., 2014), a range of drug-use patterns and injection promoting behaviors (e.g., talking positively about injection to novices, injecting in front of persons who do not inject drugs (non-PWID)) (Bluthenthal et al., 2014; Bryant and Treloar 2008; Crofts et al., 1996; Day et al., 2005; Hamida et al., 2018; Kermode et al., 2007; Rotondi et al., 2014), and other factors (Bluthenthal et al., 2014; Bryant and Treloar, 2008). Few variables have emerged from more than one study as significant predictors of assisting, in part because of limited overlap in the predictors examined. Positive predictors of assisting that have been identified in more than one study are: number of years injecting (Bryant and Treloar, 2008; Day et al., 2005; Rotondi et al., 2014), non-injection cocaine use (Bluthenthal et al., 2014; Hamida et al., 2018; Kermode et al., 2007), injection promoting behaviors (Bluthenthal et al., 2014; Rotondi et al., 2014), lending used syringes (Bryant and Treloar, 2008; Rotondi et al., 2014), and being unemployed (Kermode et al., 2007; Rotondi et al., 2014). Past experience of being injected by others was identified as a negative predictor of assisting (Bryant and Treloar, 2008; Crofts et al., 1996). A US qualitative study found that PWID who help with first injections cited two benefits of assisting: benefits to the initiate – as a way to minimize harm – and benefits to the initiator – as a tool for securing resources for everyday needs (Wenger et al., 2016).

Most of the foregoing research was conducted in North American, Australian, and English samples. We do not assume that predictors of initiating others into injection drug use in these contexts are the same as predictors in other regions, such as Eastern Europe generally, or Estonia in particular. This is all the more true in light of the varied findings across North America, England, and Australia. Given the spread of injection drug use in other regions, there is a critical need to obtain data from these regions to either inform geographically specific interventions to reduce assisting or to suggest a broader theory to inform more universal interventions. Ultimately, such interventions can reduce transitions to injection, thereby reducing the harmful health, social, and economic consequences of injecting drug use. The current study describes, among current PWID in Tallinn, Estonia, the prevalence of assisting with someone's first injection ("assisting" behaviors); of engaging in specific actions that, intentionally or not, potentially promote injection drug use among non-PWID ("promoting" behaviors), and factors associated with assisting. We include promoting behaviors among our outcomes on the basis of their strong empirical (Bluthenthal et al., 2014; Rotondi et al., 2014) and conceptual links to assisting behaviors.

2. Material and methods

2.1. Data collection

Data were collected in a cross-sectional study of 299 injectors in Tallinn from August 2016 to January 2017 using respondent-driven sampling (RDS). Potential participants were eligible for the study if: they were at least 18 years of age, spoke Estonian or Russian, reported having injected in the previous two months, and were able and willing to provide informed consent. Recruitment began with the purposive selection of "seeds" (n = 8) known to the field team to represent PWID diverse by age, gender, ethnicity, main type of drug used, and HIV status. After study participation, subjects were provided coupons for recruiting up to three peers who inject drugs. Coupons were uniquely coded to link participants to their survey responses and to biological specimens, and for monitoring recruitment lineages. Participants who completed the study received a primary incentive (a 10-euro grocery store voucher) for participating in the study and a secondary incentive (a 5-euro grocery store voucher) for each peer recruited. Peers had to come to the study site, be found eligible, and complete the study procedures for the recruiter to receive the secondary incentive.

We used an interviewer-administered structured questionnaire, containing multiple choice answer options and rating scales, based on the WHO Drug Injecting Study Phase II survey (Des Jarlais et al., 2006). Our primary outcome was ever providing injection initiation assistance ("assisting"). We defined "assisting" to participants as explaining, describing or demonstrating how to inject to a non-PWID who then injects for his/her first time in front of you, or actually injecting a non-PWID. Participants were asked about the number of non-PWID they had ever assisted, the number they had assisted in the last six months, and perceived likelihood of assisting in the future. For the last instance of assisting only, we asked about relationships to those assisted, reasons for assisting, sharing syringes with the person assisted, and thoughts about having assisted. We also asked about PWIDs past six-month experience with injection *promoting* behaviors (i.e., speaking positively about injecting to non-PWIDs, injecting in front of non-PWIDs, and offering to give a first injection to non-PWIDs), and about the number of non-PWIDs with whom they engaged in each of the three injection promoting behaviors. We note that *assisting* behaviors are distinct from *promoting* behaviors. Whereas the former by definition (see above) intentionally lead directly to someone's first injection, promoting behaviors may or may not lead to someone's first injection. Questions also elicited information on PWIDs' demographics, injection and other drug use, sexual risk behaviors, and use of various HIV/harm reduction-related services. Other questions elicited information on the size of PWIDs' injecting and non-injecting drug-using networks (using standard RDS network questions (CDC, 2012). To assess external norms, we asked participants to estimate the proportion of their PWID peers who have assisted with first injections in the last six months. Regarding perceptions of stigma, we drew one question each from two stigma instruments that address two major types of stigma. One question, assessing internalized (self-) stigma ("I feel guilty or embarrassed that I am an injection drug user"), was drawn from Kalichman's six-item AIDS-Related Stigma Scale, validated in Africa and North America (Kalichman et al., 2009). To assess injection drug use stigma, we adapted the item to refer to injection drug use rather than HIV. A second question, assessing anticipated external stigma ("I feel that people look down on me because I am an injection drug user") was drawn from Pinel's Stigma Consciousness Questionnaire, extensively validated in relation to many stigmatized groups (Pinel, 1999). We adapted the item to refer to injection drug use.

Venous blood was collected from participants and tested for the presence of HIV antibodies using commercially available test kits (ADVIA Centaur CHIV Ag/Ab Combo (SIEMENS)). The study protocol included pre- and post-HIV test counseling for study participants.

Ethical approval for the study was obtained from the Ethics Review Board of the University of Tartu, Estonia and from the Mount Sinai Beth Israel Medical Center Institutional Review Board in New York, USA (i.e., the home institution of the US collaborators). Written informed consent was secured from all participants.

2.2. Statistical analysis

We used statistical environment R (R Core Team, 2016) with packages RDS (Handcock et al., 2012) and survey (Lumley, 2004) for