



## Research Paper

## Risk behaviours and viral infections among drug injecting migrants from the former Soviet Union in Germany: Results from the DRUCK-study

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## ABSTRACT

**Background:** High prevalence of drug use and injection-related risk behaviours have been reported among former Soviet Union (FSU)-migrants. To investigate hepatitis C (HCV) and HIV seroprevalence and related risk behaviours in this subgroup in Germany, we compared first generation FSU-migrants and native Germans using data from a sero-behavioural survey of people who inject drugs (PWID).

**Methods:** Current injectors were recruited using respondent-driven sampling in eight German cities in 2011–2014. Questionnaire-based interviews were conducted and dried blood spots collected and tested for anti-HCV, HCV-RNA, and anti-HIV1/2. Descriptive and multivariable analyses (MVA) were performed.

**Results:** A total of 208 FSU-born and 1318 native German PWID were included in the analysis. FSU-migrants

**Abbreviations:** anti-HCV, HCV antibodies; anti-HIV 1/2, HIV antibodies; CI, confidence interval; DRID, drug related infectious diseases; DRUCK-study, DRUG Und Chronische Infektionskrankheiten Studie; EMCDDA, European Monitoring Centre for Drugs and Drug Addiction; FSU, Former Soviet Union; HCV, hepatitis C virus; HIV, human immunodeficiency virus; MVA, multivariable logistic regression analysis; OR, odds ratio; OST, opioid substitution treatment; p, p-value; PWID, people who inject drugs; UVA, univariable logistic regression analysis

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were younger than Germans (median age: 33 vs. 39 years), and more often male (83.1% vs. 75.9%,  $p = 0.022$ ). HCV seroprevalence was 74.5% in FSU-migrants vs. 64.6% in Germans ( $p = 0.006$ ), HIV seroprevalence was 5.8% and 4.6%, respectively ( $p = 0.443$ ). The proportion of FSU-migrants reporting injecting-related risk behaviours was higher than among Germans: injecting daily (39.4% vs. 30.2%,  $p = 0.015$ ), with friends (39.2% vs. 31.2%,  $p = 0.038$ ), cocaine (32.7% vs. 23.8%,  $p = 0.044$ ), more than one drug (18.2% vs. 9.6%,  $p = 0.006$ ), and sharing filters/cookers (35.5% vs. 28.0%,  $p = 0.045$ ). No statistically significant differences were observed in HIV/HCV testing rates (range: 50.7%–65.6%), opioid substitution treatment (43.9% vs. 50.5%), and access to clean needles/syringes (89.8% vs. 90.3%). In MVA, risk for HCV-infection was increased in male FSU-migrants compared to German males (OR 3.32,  $p = 0.006$ ), no difference was identified between female FSU-migrants and German females (OR: 0.83,  $p = 0.633$ ).

**Conclusion:** Male FSU-migrants were at highest risk of being HCV infected. Therefore, targeted actions are needed to ensure access and acceptance of harm reduction measures, including HCV-testing and -treatment for this subpopulation of PWID.

## Background

People who inject drugs (PWID) are identified as one of the groups most affected by the human immunodeficiency virus (HIV) and hepatitis C virus (HCV) in Europe (European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) (2015b); Wiessing et al., 2011). Their risk of infection is often related to the legal social, and cultural environment in which drug consumption takes place, and to related behaviours such as duration of injecting, injecting frequency, and sharing of drug paraphernalia (De, Roy, Boivin, Cox, & Morissette, 2008; Folch et al., 2016; Hagan, Thiede, & Des Jarlais, 2005; Strathdee et al., 2010). German HCV notification data from recent years shows that injecting drug use is attributed to 75% of newly diagnosed cases with information on route of transmission (Robert Koch-Institut (RKI) (2016a,b)). Studies indicate a high prevalence among PWID in Germany and in other Western European countries (Backmund, Meyer, Wächter, & Eichenlaub, 2003; Carew et al., 2017; European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) (2015a); Handanagic et al., 2016; Stark et al., 1995; Wiessing et al., 2014). In contrast to HCV, the number of newly diagnosed HIV cases in PWID has remained low over most of the past decade in Germany, but since 2015 slight increases have been observed (Robert Koch-Institut, 2016). Approximately 20–30% of these infections were acquired in Eastern or Central Europe (Robert Koch-Institut (RKI) (2015)).

In addition to PWID, some migrant groups are disproportionately affected by HCV or HIV infections (Esteban, Saulea, & Quer, 2008; Greenaway et al., 2015; Rachlis et al., 2007). People who acquired HCV or HIV in high prevalence settings may transmit infections after migrating to another country if they lack access to adequate treatment and/or prevention measures in their new country of residence (Esteban et al., 2008; Greenaway et al., 2015; Rachlis et al., 2007). Also, the migration process itself might increase vulnerability (Heimann, Penka, & Heinz, 2007; Kornischka, Assion, Ziegenbein, & Agelink, 2008; Reimer et al., 2007) and lead to risk behaviours for sexually and blood-transmitted agents. Furthermore, engagement in specific behaviours, e.g. sharing drug paraphernalia in closed communities, makes them a vulnerable group and places them at increased risk of acquiring and spreading infections (Rachlis et al., 2007).

Germany is an immigration country with an estimated 18,576,000 persons with a migration background according to the last microcensus 2016. Of those, 3,166,000 persons originate from the former Soviet Union (FSU) (Destatis - Statistisches Bundesamt, 2017), with a high proportion of repatriates of German origin. These individuals, called resettlers, have immigrated to Germany after the collapse of the Soviet Union (Kaucher, Deckert, Becher, & Winkler, 2017; Tselmin, Korenblum, Reimann, Bornstein, & Schwarz, 2007). However, the population of FSU-migrants in Germany has been described as heterogeneous in terms of integration, language skills and health-related risk patterns according to migration-generation and age at migration (Kaucher et al., 2017).

Current estimates of the proportion of migrants among PWID in Germany are not available. In 2002, it was estimated that 5% among people with problematic drug use in Germany are migrants, with most of them originating from FSU countries (Barth & Schubert, 2002). They originate from an environment, where high prevalence's of HCV (29%–90%) and HIV infection (2%–72%), and injection-related risk behaviours have been reported among PWID (Guarino, Marsch, Deren, Straussner, & Teper, 2015; Mathers et al., 2008; Uuskula et al., 2014; Walsh & Maher, 2013). Studies in local settings revealed that PWID from FSU in Germany tend to neglect the risks related with drug injecting or snorting, to start injecting at young age in many cases, too often co-consume alcohol, and to have limited knowledge of and access to the German health system for addiction treatment (Barth & Schubert, 2002; Röhnsch & Flick, 2016; Suhr, 2006). Hitherto, recent data on injection related infections in this sub-population among PWID in Germany are missing.

We aimed at describing sociodemographic characteristics, drug use patterns, risk behaviours, and HIV/HCV seroprevalence of a sub-population of drug-injecting first generation FSU-migrants in Germany in contrast to drug-injecting native Germans.

## Methods

For this analysis, data from the “Drogen und chronische Infektionskrankheiten” (DRUCK)-study was used. The DRUCK-study was a multicentre cross-sectional sero-behavioural survey among PWID. The study was piloted in Berlin and Essen and later carried out in six other German cities between 2011 and 2014. The objectives of the study were to gain insight in HIV, hepatitis B and C seroprevalence among PWID, and to evaluate risk behaviour and knowledge gaps concerning these infections (Zimmermann et al., 2014).

Participants were recruited using respondent driven sampling with low-threshold drop-in facilities as study-sites. Eligibility criteria for inclusion were injecting drug use in the past 12 months, drug consumption in one of the study cities and a minimum age of 16 years. The RDS recruitment chains in each city started from 8 to 12 initial recruits ('seeds'), eligible persons who were identified through employees of local low-threshold drug facilities. Seeds were selected to cover a broad range of PWID in the study city with respect to a number of socio-demographic and behavioural characteristics, including country of origin. Each participant had to provide informed consent before being enrolled in the study.

Biological data was collected through dried blood spots of capillary blood; these were anonymously tested for HCV antibodies (anti-HCV), HCV-RNA, and HIV antibodies (anti-HIV 1/2), if positive, confirmed by immunoblot. Details of the laboratory procedures are described elsewhere (Ross et al., 2013; Zimmermann et al., 2014). All test results were forwarded to the local study coordinator. If participants picked up the final test results they received post-test counselling performed by a medical doctor.

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