Social Science Research 45 (2014) 89–97

Contents lists available at ScienceDirect

Social Science Research

journal homepage: www.elsevier.com/locate/ssresearch

Using population screening for recruitment of young adults engaged in illicit drug use: Methodological issues and sampling outcomes

Andrew Smirnov [a,b,*], Robert Kemp [b], Helene Wells [c], Margot Legosz [c], Jake M. Najman [a,d]

[a] Queensland Alcohol and Drug Research and Education Centre, School of Population Health, The University of Queensland, Herston Rd, Herston, QLD 4006, Australia
[b] Drug Harm Reduction Branch, Health Protection Directorate, Queensland Health, Division of the Chief Health Officer, Butterfield St, Herston, QLD 4006, Australia
[c] Crime and Misconduct Commission, North Tower Green Square, St. Pauls Terrace, Fortitude Valley, QLD 4006, Australia
[d] School of Social Science, The University of Queensland, St. Lucia, QLD 4072, Australia

ARTICLE INFO

Article history:
Received 5 June 2013
Revised 18 December 2013
Accepted 9 January 2014
Available online 16 January 2014

Keywords:
Probabilistic sampling
Population screening
Illicit drug use
Ecstasy (MDMA)
Methamphetamine

ABSTRACT

Social stigma, legal sanctions and the associated lack of sampling frames create barriers to the probabilistic sampling of those engaged in a variety of behaviour, including illicit drug use. We used a novel sampling approach to recruit respondents into a longitudinal study examining amphetamine-type stimulant use. A young adult population was screened for lifetime drug use to create a sampling frame of amphetamine-type stimulant users and non-users. We posted 12,118 screening questionnaires to a random selection of young adults listed on the electoral roll for Brisbane and the Gold Coast, Australia ($N = 107,275$). Using a small pre-paid incentive and intensive telephone and postal reminders we attained a screening response rate of 49.9%. Eligible amphetamine-type stimulant users (used ecstasy or methamphetamine $\geqslant 3$ times in past 12 months) and non-users (never used ecstasy or methamphetamine) were identified by screening responses. About two-thirds of each selected group took part in the longitudinal study. Comparisons with large-scale population survey data suggest the sample was broadly representative of young adult amphetamine-type stimulant users in Australia.

1. Introduction

There is limited knowledge concerning the natural history of illicit drug use. This is particularly true with regard to the use of amphetamine-type stimulants (ATS) such as 'ecstasy' (MDMA: 3,4-methylenedioxymethamphetamine) and methamphetamine (Degenhardt et al., 2010; Hser et al., 2007; Teruya and Hser, 2010; Weinberg et al., 1998). However, an understanding of the natural history of drug use is important for developing appropriate strategies to prevent and reduce drug-related harm. The limited nature of available evidence may be partly due to the difficulty of obtaining suitable samples of drug users, a problem not confined to natural history studies. The use of population screening to identify a sample with different levels of drug involvement may present a viable alternative. However, this approach has rarely been used in illicit drug research.

* Corresponding author at: Queensland Alcohol and Drug Research and Education Centre, School of Population Health, The University of Queensland, Herston Rd, Herston, QLD 4006, Australia. Fax: +61 7 3365 5509.
E-mail address: a.smirnov@uq.edu.au (A. Smirnov).

0049-089X/$ - see front matter © 2014 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.ssresearch.2014.01.003

1.1. Current approaches

Much illicit drug use occurs at low prevalence. Consequently, general population studies concerning ATS (i.e. methamphetamine and ecstasy) and other illicit drug use are often compromised by a lack of statistical power, even when broadly related drugs are grouped together (Lieb et al., 2002). Due to the threat of legal sanctions and social stigma, there is also a lack of available sampling frames. For this reason, researchers of low prevalence and stigmatised behaviour tend to either recruit research volunteers using methods such as advertising, word-of-mouth and location-based sampling, or recruit from special populations such as treatment clients and arrestees, for which sampling frames may be available (Carballo et al., 2009). Consequently, the present understanding of the natural history of illicit drug use is largely based on evidence concerning problematic drug users.

There are pitfalls with regard to applying the findings derived from non-probabilistic samples to any population group. There are also limitations of research involving special populations, even though studies involving treatment participants provide meaningful evidence concerning the long-term course of dependence on stimulants such as methamphetamine and cocaine (Hser et al., 2008). This body of research indicates that illicit stimulant-using careers are often protracted, comprising recurrent episodes of remission and relapse (Hser et al., 2007). However, these findings may have limited applicability (Anthony et al., 1994; Wagner and Anthony, 2002). In particular, the duration of drug dependence and patterns of remission can differ between treatment participants and those who never obtain treatment (Carballo et al., 2007; Day and Best, 2007). Furthermore, users of drugs such as ecstasy have low rates of treatment presentation (Australian Institute of Health and Welfare, 2009) and treatment-based samples are typically very small (Guillot, 2007). Consequently, there is a need to study ATS (and other illicit drug use) with adequate samples drawn from the general population of people who use ATS.

1.2. Population screening

Population screening provides an avenue for creating a sampling frame which is potentially less resource-intensive than general population approaches involving large samples. Screening a random selection of the population enables 'targeted' recruitment of individuals who have attributes relevant to the study objectives but who, as a group, are also broadly representative of the total population with these attributes. However, the question of whether population screening is a valid and viable method of developing a sample for studies of illicit drug use has not previously been addressed. Few studies have used population screening to recruit drug users. Overwhelmingly, those that have done so have employed screening as a secondary measure; that is, the use of a subsample from a broader study to address specific research questions concerning drug use (e.g. Arria et al., 2008).

1.3. Engagement of young adults

Participation rates in epidemiological studies have declined for many years (Arfken and Balon, 2011; Galea and Tracy, 2007). For illicit drug research, this problem might be exacerbated by the fact that young adults, who have high rates of drug use, are often less likely to participate in research compared to older people (Cunradi et al., 2005; Galea and Tracy, 2007). Young adult respondents can also be difficult to contact, partly because of their residential mobility. Notably, household surveys of drug use have struggled with reduced participation, but problems are not confined to particular sampling methods (Groves, 2006; Morton et al., 2006). Population studies using screening-based recruitment also encounter difficulties. As part of the Netherlands XTC Toxicity (NeXT) Study, de Win and colleagues used pre-existing assessments from the Zuid-Holland study, which randomly recruited a cohort from a municipal register, to create a subsample of ecstasy users and matched controls (de Win et al., 2005). However, due to non-responders ($n = 19$) and refusals ($n = 46$), a sample size of only 21 from a possible 98 ecstasy users was attained.

1.4. Strategies for maximising participation

Despite the inherent obstacles, some population-based research has been effective in engaging with drug users and other difficult-to-reach groups. Financial remuneration is a generally accepted method of increasing participant response, and strategies such as pre-payment for participation can be particularly effective (Church, 1993; Festinger and Dugosh, 2012; Galea and Tracy, 2007). Motivation to participate may also be influenced by intangible factors. In particular, the salience of research topics has been positively associated with research participation (Bell and Salmon, 2011; Galea and Tracy, 2007; Harrison, 1995; Matsui et al., 2005).

1.5. Purpose of this study

This paper addresses the lack of practical experience and knowledge of population screening as a sampling option for illicit drug research, especially research concerning young adults. Firstly, we describe the strategies and activities involved in using population screening to create a sample for the purpose of investigating the natural history of ATS use in early adulthood. This sample comprises a drug-using group and a comparison group of non-users. Secondly, we examine the sampling