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Health, perceived quality of life and health services use among homeless illicit drug users



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ABSTRACT

Introduction: Drug misuse has been identified as a significant problem in homeless populations. This study examines aspects of physical and mental health, perceived quality of life and health service use among homeless illicit drug users and compares these to non-drug users.

Methods: Participants were recruited through health clinics across Dublin. A questionnaire assessed participants' drug use, health and well-being, health behaviours and use of health services. Descriptive statistics are presented for the entire cohort and drug users separately. Logistic regression analysis was used to examine the relationship between drug use and (i) multimorbidity, (ii) anxiety and/or depression, (iii) perceived quality of life and (iv) use of health services.

Results: Of 105 participants recruited, 35 (33%) were current drug users. Current and previous drug users were significantly more likely to have multimorbidity than those who had never taken drugs (OR 4.86, 95% CI 1.00–23.66). There was no significant difference between drug users and non-drug users in the prevalence of anxiety and/or depression. Drug users were five times more likely than non-drug users to have a low perceived quality of life (OR 5.2, 95% CI 1.7–16.0). Health service utilization was high, although some services were used less by drug users (e.g., dentist and psychiatric outpatient services) while others were used more often (e.g., phoneline services and day care centres).

Conclusion: This study highlights the high levels of drug use in this population and the negative impact of drug use on health and perceived quality of life of a homeless population in Dublin.

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1. Introduction

Homelessness is a significant and growing problem in many developed countries (Edgar et al., 2003). The true extent of the problem is unclear as no universal consensus has been reached on the definition of homelessness (Amore et al., 2011). The European Union defines homelessness as individuals who are rough sleepers, residents of emergency accommodation, and those living in insecure and inadequate housing (Amore et al., 2011). Based on that interpretation, there were 3808 persons homeless in Ireland in 2011 (Central Statistics Office, 2012). Homelessness is a growing concern as it has been shown that the prevalence is increasing in Ireland (Citizens Information Board, 2014; Edgar et al., 2003).

It is known that homelessness is associated with higher rates of mortality, morbidity, poor mental health, alcohol and drug use and other risky health behaviours relative to the general population (Central Statistics Office, 2012; Fazel et al., 2008; Hwang, 2001; Martens, 2001; O'Carroll and O'Reilly, 2008). Despite the volume of healthcare needs, homeless populations face a number of barriers to receipt of appropriate services (Canavan et al., 2012; Kushel et al., 2001).

Drug misuse in the homeless population has been identified as a significant risky behaviour and has been reported to be a cause, contributor and consequence of homelessness (Citizens Information Board, 2014; Lawless and Corr, 2005). Drug use is known to be more prevalent in the homeless population (O'Carroll and O'Reilly, 2008; Substance Abuse and Mental Health Services Administration, 2013), and studies have shown that it may be an increasing problem in this population (O'Carroll and O'Reilly, 2008). In surveys examining the prevalence of drug users among homeless population in Dublin, it was found between 29% and 64% were lifetime

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drug users and 26% to 41% were current users (Lawless and Corr, 2005). In the general population of Ireland approximately 1 in 5 (19%) have reported ever taking illicit drugs (National Advisory Committee on Drugs (NACD) and Drug and Alcohol Information and Research Unit (DAIRU), 2006 <http://www.nacd.ie/images/stories/docs/publicationa/TechnicalReport.2002-3.pdf>). Apart from alcohol, studies have reported cannabis, heroin, benzodiazepines, methadone, and head shop substances as the most frequent drug types used (Central Statistics Office, 2012).

A number of studies have examined the relationships between homelessness and the quality of life, mental health, and health service use of homeless people (Holohan, 2000; Keogh et al., 2015; O'Carroll and O'Reilly, 2008). Others have documented the negative effect of drug use on the quality of life (Costenbader et al., 2007; Fischer et al., 2005; Laudet et al., 2009; Millson et al., 2006; Ryan and White, 1996; Stein et al., 1998), physical health (most notably an increase in infectious diseases; Ezzati et al., 2002; Fischer et al., 2005; Ryan and White, 1996) and mental health (Beaulieu et al., 2012; Fischer et al., 2005; Ryan and White, 1996). However, it is not clear from the current literature how drug use affects the relationship between homelessness and these outcomes.

The aim of this study was to investigate whether drug use is associated with poorer physical health, higher levels of anxiety and/or depression, lower perceived quality of life in a homeless sample. A secondary aim of the study was to examine the levels of health service use, in particular Accident and Emergency (A&E) attendance, among homeless drug users when compared to other homeless groups.

2. Methods

2.1. Study design

The STROBE standardised reporting guidelines for cross-sectional studies were followed to conduct and report this study (von Elm et al., 2007). Ethical approval for this study was granted by the Royal College of Surgeons Research Ethics Committee.

2.2. Participants and setting

In Ireland, the majority of people pay to visit a GP and for their medication; around a third of the population is entitled to a means tested free healthcare scheme (GMS scheme). It is known from previous studies on the health of homeless people in Dublin that only around 55% of the homeless population has joined the scheme (Holohan, 2000; O'Carroll and O'Reilly, 2008). Safetynet was established in 2007 and provides homeless people, and those at risk of homelessness, with free access to primary care workers including GPs, nurses and drug workers regardless of GMS status. The clinics are all based in homeless shelters and foodhalls to allow easy access. It is supported by the Health Service Executive (HSE) and consists of 14 clinics across Ireland, although these are predominately based in Dublin.

Two medical student researchers recruited participants from four of the Safetynet health clinics across Dublin city centre. Recruitment took place during an eight week period in summer 2011, using a convenience sampling method. Recruitment continued until saturation. Each of the participating centers requested a gate-keeping mechanism, whereby patients were first informed of the study by a member of Safetynet staff and interested participants were then introduced to the researchers, who were on site. Participants provided informed consent prior to participation. Each item on the consent form was read aloud to the participant by the

researcher to overcome issues around literacy. No compensation or incentive was offered to the participants.

2.3. Survey instrument

The questionnaire consisted of 133 items that assessed patients' reasons for homelessness, health and well-being, risky health behaviours and use of health services. Participants were asked to report if they 'currently' or 'ever' experienced a list of mental and physical health problems. In addition, the study included a number of standard questionnaires used to assess patients' health. These included the AUDIT C (Alcohol Use Disorders Identification Test) to measure problem drinking, the GAD-7 (Generalised Anxiety Disorder Assessment) for anxiety and the PHQ-9 (Patient Health Questionnaire) to measure depression. The AUDIT C is scored on a scale of 0–12 with 0 representing no alcohol use, while a score of ≥ 4 in men or ≥ 3 in women indicates alcohol misuse (Bradley et al., 2007). For the PHQ-9, a score of ≥ 10 from a possible score of 27 indicates the possibility of clinically significant depression, while ≥ 15 indicates severe depression. The PHQ-9 has been shown to be an appropriate questionnaire for use in this population, on account of its reliability and brevity (Delgadillo et al., 2011; Larson, 2002). For the GAD-7, a score ≥ 10 from a possible score of 21 indicates the possibility of clinical anxiety, while a score of ≥ 15 suggests severe anxiety. Participants were also asked to self-rate their mental health on a scale from excellent to poor (5 point scale). Perceived quality of life was assessed using a single question, which was designed to be an overall indicator of subjective well-being. Participants were asked to rate their overall quality of life on a scale from excellent to poor (Score 1–5). The scale was based on a similar five point scale used in an Irish national survey (SLAN; Ward et al., 2009) and by the World Health organization survey 1998 (World Health Organization, 1998). A section of the questionnaire was dedicated to risky health behaviours, in this section participants were asked to state if they were current (within the last 90 days), previous or never illicit drug users. The questionnaire was interview-administered and took approximately 45 min to complete.

2.4. Statistical analysis

This study provides a descriptive analysis of the health and healthcare use of the homeless population, with a focus on those who have reported current drug use. Descriptive statistics are presented for the entire cohort and for current drug users separately. Comparisons were made between current drug users and non drug users for categorical data using Fishers Exact test and the p value reported.

Logistic regression models were used to determine if drug use was associated with (1) multimorbidity (defined as persons with 2 or more chronic physical health problems; Fortin et al., 2007; van den Akker et al., 1998), (2) higher levels of anxiety and/or depression (score greater than 10 on either the PHQ9 or the GAD7 was considered positive), (3) lower levels of perceived quality of life and (4) increased use of A&E services in previous six months. Variables included in all models unless otherwise specified: Age (<40 years vs. >40 years), gender (male vs. female), nationality (Irish vs. non Irish), alcohol misuse (yes vs. no based on AUDIT C), smoking (yes vs. no), multimorbidity (yes vs. no) and illicit drug use (never, current (within last 90 days), previous).

For model 1, the cohort was dichotomized based on the presence or absence of two or more chronic self reported diseases. Smoking status was not included in this model as there were no participants that had multimorbidity that were non-smokers. For model 2, depression was dichotomized into yes or no using a cut point of 10 on the PHQ9 and anxiety was defined by a cut point of 10

on the GAD7; participants were considered positive for this outcome if they had anxiety and/or depression based on the cut points described. For model 3, perceived quality of life was dichotomized into poor to good (scores 3–5) and very good to excellent (scores 1 and 2) based on a single self reported question. For model 4, use of A&E in the previous 6 months was based on self report. Results are presented as odds ratios (ORs) and corresponding 95% confidence intervals (95% CIs).

3. Results

3.1. Participants

A total of 105 participants were recruited from the four clinics during the baseline recruitment period. Thirty-five (33%) were current users of illicit drugs, while 28 (27%) of participants had used drugs in the past, but reported no current drug use.

3.2. Demographics of drug users

Supplemental Table 1¹ displays the general demographics of all participants and the subset of current drug users. Most drug users were young males (74%; 26/35), single (54%; 19/35), Irish (82%; 29/35) and over half had children (60%; 21/35). The average age of drug current drug users was 32.4 years $\pm$ 7.3 years. The majority of participants reported that they were living in their current accommodation for between 1–12 months (60%; 21/35) and accommodation type was primarily hostels (43%; 15/35). Drug and alcohol addiction (43%; 15/35) was commonly cited as the primary reason for homelessness. However, the reason for homelessness was often multifaceted, with participants generally citing more than one reason.

Self-reported drug users and non-drug users had similar basic demographics in this study, though a higher proportion of current drug users were Irish (82%; 29/35 vs. 70%; 49/70), and fewer drug users had completed third level education (3%; 1/35 vs. 13%; 9/68).

3.3. Drug use habits and characterization

Most of the participants were smokers (82% of all participants, Supplemental Table 1²) and the vast majority of drug users were also current drinkers of alcohol (94% of drug users compared to 58% of all participants). Of the 35 drug users in the sample population, 21 (60%; 21/35) reported that they were currently injecting one or more drugs intravenously. The most commonly used drug was heroin (95%; 20/21), injected on average for 61 days over the previous 90 days. Two thirds (14/21) injected every day of the preceding 90 days. Of the intravenous drug users, over half had re-used their own needle/syringe (81%; 17/21), with high proportions also reporting using a filter, spoon or flush (66%; 14/21) or injecting using a needle or syringe (66%; 14/21) used by somebody else. Almost all (20/21) of intravenous drug users had made use of the needle exchange service in the last 6 months. Almost two thirds of drug users (22/35) had mixed two or more drugs (e.g., alcohol and benzodiazepines, or cocaine and heroin), and 34% (12/35) of current drug users reported at least one accidental overdose incident in the past.

3.4. Physical health among drug users

Supplemental Table 2³ compares the health of the current illicit drug users to the other participants in the study. Of note, there were significantly more drug users than non drug users with anaemia (23%; 8/35 vs. 7%; 5/69, $p=0.031$), deep vein thrombosis (DVTs) (34%; 12/35 vs. 11%; 8/70, $p=0.008$), gastrointestinal tract disorders (43%; 15/35 vs. 18%; 13/70, $p=0.011$), skin problems (89%; 31/35 vs. 34%; 24/70, $p=0.0001$), and hepatitis C (37%; 13/35 vs. 16%; 11/69, $p=0.025$).

Table 1 shows the results of the model for the association between drug use and multimorbidity. In univariate analysis, only nationality and drug use were associated with multimorbidity. After adjusting for the other variables in the model, current and previous drug users were five times more likely to have multimorbidity than participants who had never taken drugs (OR 4.86, 95% CI 1.00–23.66, $p=0.05$).

3.5. Mental health among drug users

Details on mental health and morbidity are presented in Supplemental Table 2⁴.

In comparison to those not currently taking drugs, current drug users had a higher prevalence of depression and anxiety, but the difference between groups was not statistically significant. When the PHQ9 score was further examined for severity of depression, a significantly lower proportion of current drug users had no depression (6%; 2/35 vs. 33%; 23/70, $p=0.002$). There was also a significantly lower number of drug users who were schizophrenic (3%; 1/35 vs. 19%; 13/70, $p=0.032$).

Using logistic regression, there was an association between the presence of anxiety and/or depression and current drug use upon univariable analysis (no drug use = reference category; current drug user OR 2.75, 95% CI 1.09–6.94, $p=0.03$; previous drug user OR 1.875, 95% CI 0.71–4.94, $p=0.20$). However, this association failed to reach significance once potential confounders (age, sex, multimorbidity, nationality, smoking status and alcohol misuse) were included in the model (no drug use = reference category; current drug user OR 2.97, 95% CI 0.91–9.81; previous drug user OR 1.72, 95% CI 0.52–5.65, $p=0.37$, data not shown).

3.6. Perceived quality of life

There was a significant difference between self-reported perceived quality of life as very good to excellent among drug users and non-drug users (14%; 5/35 vs. 41%; 29/70, $p=0.007$) (see Supplemental Table 2⁵).

On univariable analysis (Table 2) there was a significant association between current drug use and a poorer perceived quality of life (OR 5.18, 95% CI 1.68–16.01, $p=0.04$). After adjusting for other variables, current drug users were four times more likely (OR 4.02, 95% CI 1.05–15.43, $p=0.05$) to have reported a poorer perceived quality of life, compared to individuals who had never taken illicit drugs. Previous drug users had a perceived quality of life that was not significantly different to those who reported never taking drugs.

¹ Supplementary material can be found by accessing the online version of this paper at <http://dx.doi.org> and by entering doi:10.1016/j.drugalcdep.2015.06.033.

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Table 1
The association between multimorbidity and drug use.

Factor	Comorbidity: No (N = 82) n (%)	Comorbidity: Yes (N = 21) n (%)	Unadjusted ^a OR (95% CI)	Adjusted ^a OR (95% CI)
Age				
Less than 40 yrs	47 (57.3)	13 (61.9)	1.00	1.00
≥40 years	35 (42.7)	8 (38.1)	0.83 (0.31, 2.18)	1.51 (0.48, 5.16)
Sex				
Female	19 (23.2)	7 (33.3)	1.00	1.00
Male	63 (76.8)	14 (66.7)	1.66 (0.58, 4.47)	2.01 (0.61, 6.67)
Nationality				
Irish	56 (68.3)	20 (95.2)	1.00	1.00
Non-Irish	26 (31.7)	1 (4.8)	0.11 (0.01, 0.85)	0.12 (0.01, 0.96)
Alcohol misuse				
No	37 (45.1)	13 (61.9)	1.00	1.00
Yes	45 (54.9)	8 (38.1)	0.51 (0.19, 2.66)	0.67 (0.23, 1.93)
Illicit drug user				
No	38 (46.3)	3 (14.3)	1.00	1.00
Current	26 (31.7)	9 (42.9)	5.18 (1.42, 18.96)	4.86 (1.00, 23.66)
Previous	18 (22.0)	9 (42.9)		

2 Persons had unknown comorbidity status.

ORs in bold indicate $p \leq 0.05$.

The relationship between multimorbidity and illicit drug use adjusted for age, sex, nationality and alcohol misuse.

^a Current and previous drug user categories were combined for logistic regression.

Table 2
The association between drug use and perceived quality of life.

Factor	Better perceived quality of life (n = 34) n (%)	Poorer perceived quality of life (n = 71) n (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Age				
Less than 40 yrs	17 (50.0)	44 (62.0)	1.0	1.0
≥40 years	17 (50.0)	27 (38.0)	0.60 (0.25, 1.39)	0.96 (0.35, 2.61)
Sex				
Female	10 (29.4)	16 (22.5)	1.0	1.0
Male	24 (70.6)	55 (77.5)	0.72 (0.29, 1.83)	0.72 (0.24, 2.11)
Nationality				
Irish	22 (64.7)	56 (78.9)	1.0	1.0
Non-Irish	12 (35.3)	15 (21.1)	0.51 (0.21, 1.26)	0.63 (0.2, 2.0)
Smoking				
No	5 (14.7)	3 (4.2)	1.0	1.0
Yes	29 (85.3)	68 (95.8)	3.79 (0.85, 16.94)	2.37 (0.47, 11.98)
Alcohol misuse				
No	19 (55.9)	31 (43.7)	1.0	1.0
Yes	15 (44.1)	40 (56.3)	1.55 (0.68, 3.55)	1.69 (0.67, 4.28)
Multimorbidity				
No	28 (82.4)	54 (76.1)	1.0	1.0
Yes	6 (17.7)	15 (21.1)	1.30 (0.45, 3.71)	0.99 (0.3, 3.27)
Unknown	0	2 (2.8)		
Illicit drug user				
No	19 (55.9)	23 (32.4)	1.0	1.0
Current	5 (14.7)	30 (42.3)	5.18 (1.68, 16.01)	4.02 (1.05, 15.43)
Previous	10 (29.4)	18 (25.4)	1.47 (0.54, 3.96)	1.11 (0.31, 3.96)

Perceived quality of life score was dichotomized into high perceived quality of life (very good and excellent) and poorer perceived quality of life (poor to good). ORs in bold indicate $p \leq 0.05$. The relationship between self-reported life quality and illicit drug use adjusted for age, sex, nationality, smoking status, alcohol misuse and presence of multimorbidity.

3.7. Use of health services

Details on the use of health services by drug users and the entire cohort are provided in Supplemental Table 3⁶. Primary care services were the most commonly reported medical services used in

the previous six months. This included the GP (86%; 30/35) and Safetynet nurses (71%; 25/35). The most common reason for their last visit to a Safetynet GP was for methadone (5/35). Many drug users were using drug services, including methadone (54%; 19/35) and needle exchange services (49%; 20/35). The majority of participants with a current mental health diagnosis reported using mental health services (80%, 20/25).

A larger proportion of drug users than non drug users had attended A&E in the last 6 months, but this was not statistically

⁶ Supplementary material can be found by accessing the online version of this paper at <http://dx.doi.org> and by entering doi:10.1016/j.drugalcdep.2015.06.033.

significant (37%; 13/35 vs. 24%; 17/70, $p=0.1783$), while fewer sought dental care and optician care (6%; 2/35 vs. 21%; 15/70, $p=0.049$ and 3%; 1/35 vs 17%; 13/105, $p=0.056$). In terms of mental health services, a significantly lower proportion of drug users had attended a psychiatric outpatient clinic in the last 6 months (3%; 1/34 vs. 24%; 17/70, $p=0.006$), but more were using phoneline services such as the Samaritans (21%; 7/34 vs. 3%; 2/70, $p=0.005$). More drug users than non drug users had been given the hepatitis B vaccine (56%; 19/34 vs. 22%; 15/69, $p=0.001$).

The association between A&E attendance in the previous 6 months and drug use was examined using logistic regression. In univariable analysis there was no significant association (no drug use = reference category; current drug use OR 1.83, 95% CI 0.68–4.93, $p>0.05$; previous drug use OR 0.89, 95% CI 0.28–2.81, $p>0.05$). No further analysis was carried out.

4. Discussion

4.1. Summary of main findings

This study found that a third of homeless people in this sample reported current illicit drug use. The majority of drug users were currently injecting one or more drugs, and the most common drug of choice was heroin. Current and previous drug users were five times more likely than non drug users to suffer from multimorbidity and current drug users were 4 times more likely compared to never drug users to have a lower perceived quality of life. Mental health problems were common in both groups but there was no significant difference in the prevalence of anxiety or depression between drug users and non drug users. Overall, health care utilization amongst homeless people was high; however drug users utilised some services significantly less than non drug users (e.g., opticians, dentists and psychiatric outpatients), but utilised other services more often (e.g., phonelines such as the Samaritans and day care centres).

4.2. Results in the context of other studies

The prevalence of drug taking in this study is consistent with previous studies in Dublin that reported between 26% and 41% of homeless people are current drug users (Lawless and Corr, 2005). A number of studies investigating the association between mental health status and drug use in homeless people have found an association (Palepu et al., 2013; Rhoades et al., 2011; Torchalla et al., 2011). The association between depression and cocaine use was shown in a 2008 meta-analysis which included 60 studies (Conner et al., 2008). It has also been reported that heroin users have the highest level of depression among homeless population (Hadland et al., 2011). Although our results do not support this association, we did find a high level of mental health problems in the homeless regardless of their drug use (70% of cohort reported a mental health problem). Studies have also reported that the association between illicit drug use and mental health may be stronger in females than males (Kay et al., 2010) and therefore our sample with only 9 females, may not have had sufficient power to detect this association.

Previous studies have shown a negative relationship between heroin use and perceived quality of life (Domingo-Salvany et al., 2010; Fischer et al., 2005; Meshesha et al., 2013) and have also reported that perceived quality of life can be improved when methadone treatment is started (Domingo-Salvany et al., 2010; Torrens et al., 1997). Our study showed a marked difference in the perceived quality of life between drug users and non drug users and suggested that previous drug users had an improved perceived quality of life compared to current drug users.

In terms of health service use, previous studies have shown that drug users are generally reluctant to access healthcare from conventional outlets such as the GP, but are more likely to utilise emergency room services (French et al., 2000; Thakrar et al., 2015). Our study doesn't support this finding as many of the drug users had used a GP in the last 6 months. However, many of these visits would have been to a Safetynet Clinic which are located within homeless shelters and drug users may find more accessible and acceptable (Islam et al., 2012). In our study, fewer drug users attended psychiatric outpatient units or dentists. Although almost half of all participants reported dental problems (Supplemental Table 3⁷), drug users were significantly less likely than non drug users to visit to the dentist. Previous studies have shown that homeless drug users often don't seek dental care, especially when they have frequent oral health problems (Fan et al., 2006; Robbins et al., 2010). The lack of attendance to various health services may be attributed to issues of cost, accessibility, disengagement or reluctance to be seen by a stranger (Christiani et al., 2008).

4.3. Strengths and limitations

This is the first study to examine physical and mental health of the homeless in Dublin since free access to primary care services was made available for this population, through Safetynet. The homeless population is generally a difficult population to access and although the sample size is quite small, the recruitment process continued until saturation was achieved in each of the four clinics that permitted access for recruitment. However, the small sample size and the recruitment method used in this study limits the generalizability of the results. We compared self-reported current illicit drug users to those who do not currently take drugs, though may have in the past. However, the latter group may have had individuals suffering from other types of substance abuse, such as alcohol misuse. In addition, the classification for drug use was based on self report and therefore may be subject to bias.

4.4. Clinical implications

In general, drug users in this study suffered from more physical health complaints than non users. Although not statistically significant, we found a higher proportion of drug users were suffering from mental health problems, and yet very few had attended a psychiatric outpatient department in the previous six months. This finding is important in the context of health services planning, particularly relating to access to specialist services, the frequency of follow up and the duration of appointments. Participants reported using services, particularly phoneline help, so it is possible that drug users are more comfortable with this type of access rather than a specialist outpatients department.

Participants in the current study reported high levels of problem health behaviours, such as unsafe injection practices, which will likely result in future adverse outcomes (Comisky et al., 2009). This study and others have shown the link between perceived quality of life and drug use, with drug users reporting a lower perceived quality of life than other homeless individuals. Studies have shown that one way to improve the perceived quality of life in this group is the use of a drug substitute such as methadone (Domingo-Salvany et al., 2010). Finally, accessible primary care has been shown to be very effective for health interventions in this population (Wright and Tompkins, 2006). Our study was conducted through Safetynet, a primary health initiative for the homeless population in Dublin;

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as this service provides care for many drug users it may be more accessible and acceptable than most primary care clinics.

4.5. Conclusion

This study highlights the negative impact of drug use on the physical health and perceived quality of life among a homeless population in Dublin.

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Authors' contributions

KOS, KOB, CK and TF conceived of the study and participated in its design. EDS, KOB and AS completed the data analysis. AS, AA, RG and KOB completed the first draft of the paper. All authors commented on the final manuscript.

Conflict of interest statement

AOC established Safetynet and facilitated our access to Safetynet clinics, however AOC was not involved in data collection, analysis or interpretation of the results. All other authors declare no competing interests.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.drugalcdep.2015.06.033>

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