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Frequent experience of discrimination among people who inject drugs: Links with health and wellbeing

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ABSTRACT

Background: Previous research has shown that people who inject drugs (PWID) experience discrimination on a regular basis. This study explores the relationships between discrimination against PWID and health and wellbeing.

Methods: Data on discrimination against PWID and their health and wellbeing were drawn from the Illicit Drug Reporting System collected in Australia in 2016. The Personal Wellbeing Index was used to measure wellbeing, and the Kessler-10 scale was used to measure psychological distress. Experience of overdose, injecting related illnesses, diseases, and risky injecting behaviour were also assessed. We fitted multivariate logistic regression models adjusted for socio-demographic, imprisonment history, and drug-related factors.

Results: Of the 796 participants included in the study, the majority who reported experiencing discrimination were male (65%), heterosexual (89%), and unemployed (89%). Thirty percent of the sample (n = 238) reported they had never experienced discrimination because of their injecting drug use. Seventeen percent of participants had not experienced discrimination in the twelve months prior to the interview, 24% experienced discrimination monthly, 16% experienced discrimination weekly, and 13% experienced discrimination daily or more. Frequent discrimination was associated with increased odds of overdosing, injecting related illnesses and diseases, mental health issues, and poor wellbeing. Among those who reported experiencing discrimination, females and those who identified as Indigenous were found to have poorer health and wellbeing outcomes.

Conclusions: Our findings highlighted that frequent discrimination may lead to worse health and wellbeing among PWID. If our findings are supported by other research, policies aimed at reducing discrimination against PWID may be warranted or improved.

1. Background

Injecting drug use is the most stigmatised among all routes of illicit drug administration (Ahern et al., 2007), as it is seen as the ultimate breach of social conventions in contemporary society (Treloar et al., 2013; Manderson, 1995). Stigma, as a sign of low moral status (Goffman, 1986), is followed by discrimination (Sartorius, 2006), which is defined as actions from a dominant group or group member that aim to harm other individuals that are part of less dominant groups (Huddy et al., 2013). Discrimination may generate adverse social and individual outcomes in those discriminated against. Experiencing discrimination is especially damaging for PWID, as it is shown to happen in diverse settings including employment, health, and welfare and is perpetrated by a variety of social actors such as employers and co-workers (Earnshaw et al., 2013), health providers (Sarin and Kerrigan, 2012; Simmonds and Coomber, 2009), and members of the general public (Davidson et al., 2012; Gayen et al., 2012; McKenna, 2013). As such, discrimination can be a catalyst for ongoing denials and exclusions for PWID.

These settings are mainly places that PWID seek out in order to improve their health, wellbeing, and life standards. Work, for example, is important in the lives of mainstream society members, and evidence shows that holding a job is beneficial not only in its financial aspect but also for individuals' physical and mental health and general wellbeing

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(Waddell and Burton, 2006). PWID are largely unemployed and are shown to have difficulty finding and/or securing a job for a range of reasons, one of which includes discrimination attached to their injecting drug use (Sarin and Kerrigan, 2012).

Discrimination may also be a barrier for those who choose to change their injecting drug behaviour by engaging in opioid substitution treatment (OST). Beginning OST presents a number of difficulties. In addition to the immediate challenges of coping with withdrawal symptoms, social ties to PWID who are not in treatment, and temptation to use other drugs, there is evidence of discrimination against PWID in OST dispensing pharmacies. Pharmacy staff have been shown to prioritise other customers over PWID on OST, resulting in long waiting times (Davidson et al., 2012; Simmonds and Coomber, 2009).

Similarly, welfare settings can be a source of discrimination. The 2016 Australian Illicit Drug Reporting System (IDRS) report suggested that PWID experienced discrimination regularly when attempting to access welfare services (Stafford and Breen, 2017), most notably when they try to secure and/or maintain safe accommodation. Considering that 80% of participants in this sample reported being homeless, it is important to determine whether discrimination from the welfare system perpetrates a lifestyle of homelessness (Stafford and Breen, 2017). Further, PWID have also reported being discriminated against in public places, which can happen more frequently when people are homeless (Stafford and Breen, 2017). A lack of safe accommodation is also associated with poor overall health and wellbeing, and previous studies have identified relationships between discrimination and adverse physical and mental health outcomes among PWID (Sarin and Kerrigan, 2012; Neale et al., 2008; Davidson et al., 2012; Wilson et al., 2014; Gayen et al., 2012).

Previous studies have found links between stigma, discrimination, and the health and wellbeing of people who use drugs (Cama et al., 2016; van Boekel et al., 2013) and have highlighted the importance of reducing discrimination in health and social care contexts (Brener et al., 2010; Neale et al., 2008). However, beyond this initial evidence, there is limited understanding of whether frequency of discrimination impacts the health, wellbeing, and welfare of PWID. Investigating the relationship between frequent discrimination and the health and wellbeing of the PWID can expand the literature on this topic and give new insight into aspects of discrimination that are more pronounced for PWID (Bullen, 2010; Rivera et al., 2014). This paper will explore whether frequency of discrimination impacts on the health and wellbeing of a national sample of PWID in Australia.

2. Methodology

2.1. Study design

Each year, a sentinel sample of approximately 800 people who regularly inject illicit drugs is recruited across all State and Territory capitals in Australia for the Illicit Drug Reporting System (IDRS) survey. Participants are recruited using social media advertisements, posters in relevant health facilities, and word of mouth. The questionnaire asks about their patterns of drug use, involvement in crime, use of health services, and their health and wellbeing. Interviews last approximately one hour and are conducted in Needle and Syringe Program facilities by trained non-judgmental interviewers. The IDRS methodology is extensively described elsewhere (Hando et al., 1998). Ethics approval was obtained from local ethics committees from each State and Territory as well as from the University of New South Wales Human Research Ethics Committee. Participants provided informed consent and upon completion of interview were reimbursed forty Australian dollars. Participants were eligible if they were seventeen years or older, injected drugs regularly (i.e., at least monthly) in the six months prior to interview, and had lived in the city of interview for at least twelve months prior to the interview. Participants who have been away from the local market for more than 2 months, e.g., due to incarceration or residential treatment, are ineligible for the IDRS.

2.2. Measures

Participants were asked how often, on average, they had been treated differently to other people and believed it was because they were PWID (never /not in the previous twelve months, monthly, weekly +).

We recoded experience of overdose and injecting related illnesses and diseases (dirty hit[1], abscesses or infections from injecting, difficulty injecting, and thrombosis or blood clots) in the month prior to interview. We also recorded engagement in unsafe injecting behaviour using two items inquiring about borrowing needles and/or injecting equipment in the previous month (no/yes). We asked participants to report any mental health issues in the six months prior to the interview (no/yes) and assessed psychological distress by dichotomising the 50 scores from the Kessler-10 scale ["low or no distress" (score 0–15) and "moderate/high/very high distress" (score 16–50)] (Kessler et al., 2002).

We asked participants to rate their general health between excellent/good (0) and fair/poor (1). We also used the validated scale Personal Wellbeing Index (PWI) (International Wellbeing Group, 2013) to compare our sample mean with the Australian population mean. The seven items of the PWI were summed to generate a total score ranging from 0–63. We converted the score reported in the 2016 Australian Unity Wellbeing Index survey (76.7 out of a possible 100) (The Australian Unity Wellbeing Research Team, 2016) using the formula from the PWI manual (Supplementary Figure). This yielded a corresponding Australian mean score of 49, which we used to generate a binary variable indicating scores equal to or above (0) or below the Australian mean (1). We also used current or recent experience of homelessness as another indicator of wellbeing (Steiner et al., 1995), which was coded as past (0) and current/recent homelessness (1).

2.3. Data analysis and covariates

We used descriptive analyses to investigate differences in health and wellbeing by frequency of discrimination and cross-tabulated with potential confounders. We then used multivariate logistic regression analysis to model relationships between frequency of experience of discrimination and indicators of health and wellbeing using the standard p-value ($p < .05$).

Covariates which were associated with either the dependent or independent variables were included in the analyses. These were age, gender, employment status, Aboriginal/Torres Strait Islander status, education level, accommodation type, most injected drug, age of first injection, frequency of injecting, if currently in treatment, prison history, and if arrested in the previous twelve months. We conducted interaction analyses where covariates appeared to reduce the association between discrimination and our outcomes of interest. Missing data represented 7.5% of the total sample of people who reported discrimination, and there were no differences between those lost to follow up and those who remained in the study (results not shown).

3. Results

From a total of 796 respondents, 29.9% reported they had never been treated differently to other people because of their injecting drug use, 17.1% had not experienced discrimination in the twelve months prior to the interview, 24.4% experienced discrimination monthly, and 28.7% experienced discrimination weekly or more often.

Gender and current treatment were associated with experience of discrimination (Table 1). In adjusted models, more frequent

[1] An injection that makes the person feel sick.

Table 1
Distributions of socio-demographic covariates by the frequency of discrimination.

Variables	Frequency of Discrimination			
	Not in the previous 12 months (%)	Monthly (%)	Weekly or more (%)	Relationship Chi-squared value (P-value)
Age (n = 796)	n = 374	n = 194	n = 228	0.255
Younger than 40 years old	38	43	45	
40 years old or more	62	57	55	
Gender (n = 795)	n = 373	n = 194	n = 228	0.015
Female	27	32	38	
Male	74	68	62	
Employment Status (n = 787)	n = 368	n = 193	n = 226	0.045
Not employed	89	86	94	
Worker	10	14	5	
Student	1	1	1	
Aboriginal/Torres Strait Islander (n = 795)	n = 373	n = 194	n = 228	0.479
No	81	85	82	
Yes	19	15	18	
Education Level (n = 796)	n = 374	n = 194	n = 228	0.244
Year 11 or 12	31	30	36	
Year 10 or less	70	70	64	
Accommodation Type [a] (n = 770)	n = 363	n = 186	n = 221	0.001
Stable accommodation	80	80	67	
Non-stable accommodation	20	20	33	
Most injected drug (n = 780)	n = 396	n = 188	n = 223	0.476
Heroin	38	39	43	
OST [b]/Other opiates	21	21	16	
Stimulants	40	40	41	
Age of first injection (n = 796)	n = 374	n = 194	n = 228	0.649
14 or less	15	16	21	
15-18	38	35	38	
19-25	31	31	26	
26-35	13	16	12	
36+	4	4	3	
Frequency of injection (n = 796)	n = 374	n = 194	n = 228	0.299
Weekly or less	20	16	13	
More than weekly, not daily	38	39	39	
Daily or more	43	45	48	
If in treatment (n = 795)	n = 373	n = 194	n = 228	0.021
Not in treatment	61	59	50	
In treatment	39	41	50	

[a] Stable accommodation: Own house/flat or rented house/flat. Non-stable accommodation: Parent's/family home, boarding house/hostel, Shelter/refuge, drug treatment residence, no fixed address/homeless.
[b] Medication provided on Opioid Substitution Therapy.

experiences of discrimination (monthly+) were associated with increased likelihood of reporting poorer physical health (including injecting related problems), poorer mental health and wellbeing, experience of overdose, abscesses or infections from injecting, and poorer general health (Table 2). We further investigated differences between those who experienced discrimination monthly and those who experienced it weekly or more and found no differences between the two groups (Supplementary Table). In interaction models, the risk of having difficulty injecting was over 40% higher for females, and the risk of self-reporting mental health problems was 33% higher among those experiencing discrimination weekly or more often (Table 3). The risk of self-reported mental health problems was nearly three times higher for people who identified as Aboriginal/Torres Strait Islander than it was for non-Indigenous participants (Table 4).

4. Discussion

Our results showed that nearly half of the sample reported experiencing discrimination in the previous 12 months. When compared to people who reported they had not experienced frequent discrimination (within previous twelve months), those who had were more likely to report an overdose, injecting related illnesses and diseases, poor mental health, and poor wellbeing. Our study showed that frequent experience of discrimination was associated with three out of seven injecting-related risks, illnesses, and diseases. Frequent experience of discrimination was also associated with one out of two mental health indicators and all three wellbeing indicators. This builds upon previous research demonstrating an overall link between discrimination and mental and physical health (Coutoe et al., Unpublished results; Young et al., 2005; Cama et al., 2016; Treloar et al., 2013).

Our findings on frequent discrimination and indicators of poorer health and wellbeing are in accordance with other research showing that frequent experience of discrimination among a racial minority was linked with poorer psychological adjustment (Huynh et al., 2012). Our findings are also in line with a meta-analytic review showing that recent life events are linked with psychotic disorders/experiences (Beards et al., 2013). Our study supports the view that constant negative reinforcements generated by discrimination may have a cumulative impact on health and wellbeing. We also highlight the relevance of assessing the timeframe of the experience of discrimination in future research and analysing its health correlates.

There is a paucity of literature that has explored the relationship between discrimination against PWID and injecting-related risks and harms. Our findings linking discrimination against PWID with overdose and injection-related harms (abscesses or infections from injecting and difficulty injecting) is a significant contribution to this limited literature. These findings are partly supported by a recent systematic review linking risky injecting behaviour among PWID with discrimination against PWID by Needle and Syringe Program staff (Couto e Cruz et al., in press). In light of a successful antidiscrimination training implemented among drug and alcohol workers in an Australian state (Brener et al., 2017), we argue that there is a need to include welfare and other health workers in such training and expand it to a national level.

Our results also show that the likelihood of injecting-related illnesses and diseases and poor mental health are higher among females who experience discrimination. This may be explained by recent findings that women experience more mental health problems than men (Australian Bureau of Statistics, 2015) and are also more likely to be injected by others, increasing the risk of associated harms (Zahidie et al., 2013). However, females who use drugs tend to be viewed more harshly than men, often due to public perceptions of them as “bad mothers”, and so they may be more affected by discrimination than men (McKenna, 2013; Earnshaw et al., 2013).

We showed that Aboriginal and Torres Strait Islander PWID were less likely to have their health and wellbeing affected by injecting related discrimination. However, when discrimination was reported as very frequent (weekly or more often), the interaction model indicated a higher risk of mental health problems among Indigenous PWID when compared to non-Indigenous participants. Taken together, these findings reinforce the need to develop anti-discrimination strategies that consider the specificities of gender and Indigenous status.

Table 2
Models of health for PWID in relation to timeframe of discrimination.

	Injecting related risks, illnesses and diseases							Mental Health		Wellbeing		
	Overdose[b]	Dirty Hit [c]	Abscesses or infections from injecting [c]	Prominent scarring or bruising [c]	Difficulty Injecting [c]	Thrombosis or blood clots [c]	Injecting risky behaviour [c]	Self-reported Mental Health Problems [d]	Mod. to high mental distress (K-10) [c]	Recently homeless	General health poor or fair	Wellbeing Below Australian mean (PWI-A)
	AOR	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**	**AOR**
	CI_{95}	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**	**CI_{95}**
Discriminated monthly	1.2	0.9	1.9	1.2	1.5	2.5	1.1	1.6	0.8	1.9	1.3	1.7
	0.8-1.7	0.4-1.9	0.9-4.0	0.8-1.8	1.0-2.2	0.9-6.9	0.5-2.5	1.1-2.3	0.3-2.2	1.2-2.9	0.9-1.9	1.1-2.8
Discriminated weekly or more	1.6	1	2.9	1.2	2	2.5	1.5	1.8	1.6	2	2	2.9
	1.1-2.2	0.5-2.1	1.5-5.7	0.8-1.7	1.4-2.8	1.0-6.5	0.7-3.0	1.2-2.6	0.4-6.5	1.3-3.0	1.4-2.9	1.7-4.8
≥ 40 years old	1.6	0.8	1	0.8	1.1	1.4	0.3	1.1	0.6	0.7	2.2	1
	1.1-2.2	0.4-1.5	0.6-1.9	0.6-1.1	0.8-1.6	0.6-3.3	0.2-0.6	0.8-1.5	0.2-1.7	0.4-0.9	1.6-3.1	0.7-1.4
Male	1	0.4	0.8	0.6	0.5	0.8	0.8	0.7	0.7	1.5	0.8	1
	0.7-1.4	0.2-0.8	0.4-1.5	0.4-0.9	0.3-0.7	0.3-1.9	0.4-1.6	0.5-1.0	0.2-2.4	1.0-2.3	0.5-1.1	0.6-1.5
Aboriginal/ Torres Strait Island origin	0.6	0.6	0.7	0.7	0.6	0.4	1.2	0.4	1	1.1	0.8	0.4
	0.4-0.9	0.2-1.4	0.3-1.5	0.5-1.1	0.4-0.9	0.1-1.5	0.6-2.6	0.3-0.7	0.3-3.7	0.7-1.7	0.5-1.2	0.3-0.7
Completed up to year 10 at school	1.4	0.9	0.8	1	0.8	0.7	1	1.1	0.4	0.6	0.7	–
	1.0-1.9	0.5-1.7	0.4-1.5	0.7-1.4	0.6-1.2	0.3-1.7	0.5-2.0	0.8-1.6	0.1-1.5	0.4-1.0	0.5-0.9	–
Worker	0.6	1.2	0.7	1	1	0.3	1.2	0.6	0.4	0.5	0.9	–
	0.3-1.0	0.4-3.3	0.2-2.4	0.6-1.7	0.6-1.8	0.0-2.2	0.4-3.3	0.3-1.1	0.1-1.3	0.2-0.9	0.5-1.6	–
Student	0.6	1	1	0.7	1.1	1	1	1.4	1	1	0.7	–
	0.1-2.7	1.0-1.0	1.0-1.0	0.2-3.0	0.2-4.9	1.0-1.0	1.0-1.0	0.3-5.9	1.0-1.0	1.0-1.0	0.1-4.0	–
Non-stable accommodation	0.7	0.8	1.5	1	1.1	0.6	1.2	1.1	2.2	–	1	–
	0.5-1.1	0.3-1.7	0.8-2.8	0.7-1.5	0.7-1.6	0.2-1.8	0.6-2.4	0.8-1.6	0.5-10.3	–	0.7-1.5	–
In treatment	1.4	1.9	0.9	1.2	1.4	2.1	0.6	1.3	1	0.5	1	0.9
	1.0-1.9	1.0-3.5	0.5-1.7	0.9-1.7	1.0-1.9	0.9-4.7	0.3-1.1	1.0-1.8	0.3-2.7	0.3-0.7	0.7-1.3	0.6-1.3
Age of first injection between 15-18 years old	0.9	0.8	1.3	1.2	1.3	3.2	1.2	0.8	1.3	0.7	0.7	0.7
	0.5-1.4	0.4-1.9	0.6-3.2	0.7-1.9	0.8-2.1	0.8-12.0	0.4-3.5	0.5-1.2	0.3-5.3	0.4-1.1	0.4-1.1	0.4-1.3
Age of first injection between 19-25 years old	0.8	0.6	1	0.7	1.2	1	2.3	0.7	2.1	1.2	0.6	0.8
	0.5-1.3	0.2-1.4	0.4-2.5	0.4-1.1	0.7-2.0	0.2-4.8	0.8-6.4	0.4-1.1	0.4-10.9	0.7-2.1	0.4-1.0	0.5-1.6
Age of first injection between 26-35 years old	0.6	0.5	1.5	1.2	1.3	3.7	3.1	1.3	3.6	0.7	0.8	0.9
	0.3-1.0	0.2-1.7	0.5-4.1	0.7-2.1	0.7-2.4	0.8-16.9	1.0-9.4	0.7-2.3	0.3-38.4	0.4-1.3	0.5-1.5	0.4-2.0
Age of first injection ≥ 36 years old	0.3	1	1.5	0.7	0.9	1	1	1	0.3	0.9	0.7	1.1
	0.1-0.9	1.0-1.0	0.3-6.7	0.3-1.8	0.3-2.5	1.0-1.0	1.0-1.0	0.4-2.6	0.0-2.7	0.3-2.7	0.3-1.8	0.3-4.0
OST/Other opiates [e]	0.7	2.3	2.1	0.9	1.4	1.9	0.3	0.8	1	0.6	1.6	1.1
	0.5-1.1	1.1-4.9	1.0-4.4	0.6-1.4	0.9-2.1	0.7-5.0	0.1-0.9	0.5-1.3	0.2-4.3	0.4-1.1	1.1-2.5	0.6-1.8
Stimulants [f]	0.7	1.3	1.2	1	1	1	0.5	1.1	0.5	1	0.8	0.9
	0.5-1.0	0.6-2.8	0.6-2.5	0.7-1.4	0.7-1.5	0.4-2.8	0.2-1.0	0.8-1.6	0.2-1.7	0.7-1.6	0.6-1.2	0.5-1.3
Inject more than weekly, but not daily	1.1	1.8	1.2	1.8	1.6	0.7	1.9	0.9	0.5	1	1.2	1.3
	0.7-1.8	0.6-5.6	0.5-3.1	1.1-2.8	1.0-2.5	0.2-2.5	0.7-5.3	0.6-1.4	0.1-2.0	0.6-1.7	0.8-1.9	0.8-2.2
Inject daily or more	1.1	2.9	1.8	2.3	1.8	2.1	1.3	0.7	1	1.4	1.2	1.3
	0.7-1.8	0.9-8.6	0.7-4.6	1.5-3.7	1.1-2.9	0.6-7.1	0.5-3.7	0.5-1.1	0.2-4.7	0.8-2.3	0.8-2.0	0.8-2.2
Ever in prison	1.6	1.2	0.9	1	1.1	0.7	1.2	0.7	0.5	1.1	1.1	1.1

(*continued on next page*)

Table 2 (*continued*)

	Injecting related risks, illnesses and diseases							Mental Health		Wellbeing		
	Overdose[b]	Dirty Hit [c]	Abscesses or infections from injecting [c]	Prominent scarring or bruising [c]	Difficulty Injecting [c]	Thrombosis or blood clots [c]	Injecting risky behaviour [c]	Self-reported Mental Health Problems [d]	Mod. to high mental distress (K-10) [c]	Recently homeless	General health poor or fair	Wellbeing Below Australian mean (PWI-A)
	AOR **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**	**AOR** **CI_{95}**
	1.2-2.3	0.6-2.3	0.5-1.7	0.7-1.4	0.8-1.5	0.3-1.6	0.6-2.3	0.5-1.0	0.2-1.4	0.8-1.7	0.8-1.5	0.7-1.6
Arrested in the previous 12m	1.2	1	0.7	1	1.1	2	1.4	1.3	1.1	3	1.1	1.5
	0.9-1.7	0.5-1.9	0.4-1.3	0.7-1.4	0.8-1.5	0.9-4.7	0.7-2.6	0.9-1.8	0.4-3.1	2.1-4.4	0.8-1.6	1.0-2.3

Note[1]: Each column above represents a separate model.

Note[2]: The model 'Recently homeless' was not adjusted for 'accommodation type' and the model 'Personal Wellbeing Index' was not adjusted for 'accommodation type', 'employment status' and 'education level'.

[a] Exceptions noted above, all models were adjusted for age, gender, employment status, Aboriginal or Torres Straight Island origin, education level, accommodation type, most injected drug, age of first injection, frequency of injection, if currently in treatment, if arrested in the previous 12 months and if ever in prison.

[b] Lifetime.

[c] Previous month.

[d] Previous six months.

[e] OST/opiates other than heroin as the most injected drug.

[f] Stimulants as the most injected drugs.

Table 3
Interaction model of health indicators in relation to timeframe of discrimination, by gender.

	Any gender	Females	Males
Dirty Hit			
Discriminated monthly	0.9 (0.4-1.9)	0.3 (0.1-1.4)	1.6 (0.6-4.6)
Discriminated weekly or more	1.0 (0.5-2.1)	0.4 (0.1-1.2)	2.2 (0.8-6.0)
Prominent Scarring or bruising			
Discriminated monthly	1.2 (0.8-1.8)	2.6 (1.2-5.6)	0.9 (0.6-1.4)
Discriminated weekly or more	1.2 (0.8-1.7)	1.6 (0.8-3.2)	1.0 (0.6-1.6)
Difficulty injecting			
Discriminated monthly	1.5 (1.0-2.3)	2.8 (1.3-6.0)	1.1 (0.7-1.8)
Discriminated weekly or more	2.0 (1.4-2.8)	2.7 (1.4-5.4)	1.9 (1.2-2.9)
Self-reported mental health problems			
Discriminated monthly	1.6 (1.1-2.3)	1.2 (0.5-2.5)	1.4 (0.9-2.1)
Discriminated weekly or more	1.8 (1.2-2.6)	2.4 (1.2-4.9)	1.8 (1.1-2.8)

Note: reference category is no discrimination/not in the previous 12 months.

Table 4
Interaction model of health indicators in relation to timeframe of discrimination, by Aboriginal/Torres Strait Island origin.

	Any origin	ATSI[a]	Non-ATSI
Overdose			
Discriminated monthly	1.2 (0.8-1.8)	0.7 (0.2–2.1)	1.2 (0.8–1.8)
Discriminated weekly or more	1.6 (1.1–2.3)	1.2 (0.5–2.1)	1.7 (1.1–2.6)
Self-reported mental health problems			
Discriminated monthly	1.6 (1.1–2.3)	3.1 (1.0–9.7)	1.2 (0.8–1.8)
Discriminated weekly or more	1.8 (1.2–2.6)	4.9 (1.7–14.1)	1.7 (1.1–2.6)
Personal Wellbeing Index poorer than Australian mean			
Discriminated monthly	1.7 (1.1–2.8)	1.4 (0.4–4.2)	1.8 (1.0–3.1)
Discriminated weekly or more	2.9 (1.7–4.2)	9.5 (2.6-34.5)	2.2 (1.2–3.8)

[a] Aboriginal/Torres Strait Islander

Note: reference category is no discrimination/not in the previous 12 months.

The present study has some limitations. Our data does not differentiate between discrimination experienced infrequently over the last year and discrimination experienced monthly or more. Also, our study is based on cross-sectional data. There is a need to explore these issues in longitudinal studies in order to identify whether causal links can be made between discrimination and poorer health and wellbeing, the directionality of the relationship, and whether *frequent* discrimination is the more influential issue. In order to advance the current literature, there is also a need to investigate how the setting of discrimination, indexed by the purpose of the venue (e.g., home, health care, public space), is related to health and wellbeing for PWID.

5. Conclusion

The evidence we presented showing links between frequent discrimination and poor health and wellbeing in PWID advances understanding of the features of discrimination against PWID. It may be used to develop new strategies aimed at reducing discrimination and could also be used to improve existing anti-discrimination policies.

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Contributors

Camila Couto e Cruz performed data analysis and drafted the research paper. Caroline Salom assisted with data analysis, critically revised and contributed to the drafting of the research paper. Paul Dietze critically revised and contributed to the drafting of the paper. Simon Lenton critically revised and contributed to the drafting of the paper. Lucinda Burns critically revised and contributed to the drafting of the paper. Rosa Alati contributed to the development the argumentation based on the analytical process, critically revised and contributed to the drafting of the paper. All authors contributed to and approved the final version of the research paper.

Conflict of interest

None.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.drugalcdep.2018.06.009.

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