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Implicit and explicit internalized stigma: Relationship with risky behaviors, psychosocial functioning and healthcare access among people who inject drugs

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HIGHLIGHTS

- Implicit and explicit internalized stigma among people who inject drugs is assessed.
- Explicit internalized stigma is associated with poorer psychosocial functioning.
- Explicit internalized stigma is associated with less comfort attending NSPs.
- Implicit positivity is associated with needle sharing and treatment avoidance.

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ABSTRACT

Introduction: People who inject drugs (PWID) are stigmatized by society. Over time people may begin to internalize the stigma about their group. This research examines how implicit and explicit internalized stigma among PWID relates to health care and treatment access, psychosocial functioning, and engagement in risky behaviors.

Methods: PWID were recruited from a needle and syringe program (NSP) located in Sydney, Australia. Participants completed a survey examining explicit and implicit internalized stigma, risky behaviors (e.g., sharing injecting equipment, unprotected sex), health care and treatment access (e.g., comfort attending NSPs), and psychosocial functioning (e.g., mental health). Detailed demographic variables were also collected.

Results: A total of 115 clients completed the measures. To the degree that participants had internalized the stigma about their group (measured explicitly), they felt less comfortable attending NSPs, had greater severity of dependence, and experienced more depressive symptoms. The implicit measure of internalized stigma was related to treatment engagement and needle sharing, although the direction of these effects was unexpected.

Conclusions: This research highlights the importance of ongoing research into the implications of internalized stigma for PWID. Assessing both explicit and implicit internalized stigma appears to be beneficial as these are related to different health and behavioral outcomes.

A long research tradition demonstrates that being stigmatized negatively impacts psychological health (e.g., self-esteem and emotional well-being; Bourguignon, Seron, Yzerbyt, & Herman, 2006; Major, Quinton, & McCoy, 2002, Major, Kaiser, O'Brien, & McCoy, 2007) and physical health (Ahern, Stuber, & Galea, 2007; Hopwood, Treloar, & Bryant, 2006; Schuster et al., 2005). Injecting drug use is a highly stigmatized behavior and people who inject drugs (PWID) receive harsh condemnation (Capitanio & Herek, 1999; Frable, 1993). PWID are stereotyped as dangerous, irresponsible, and weak (Conrad, Garrett, Cooksley, Dunne, & MacDonald, 2006; Herek, Capitanio, & Widaman, 2003; Tindal, Cook, & Foster, 2010). They are often perceived as people who steal to support their habit and pollute mainstream society with their chaotic behavior and drug related illnesses (Elliott & Chapman, 2000). These negative views of PWID are not limited to the general public, as it is well documented that PWID also experience stigma and discrimination from health care workers (Day, Ross, & Dolan, 2003; Hopwood et al., 2006; von Hippel, Brener, & Von Hippel, 2008; Wilson, Brener, Mao, & Treloar, 2014).

Over time, people from stigmatized groups can come to internalize the stigmatizing attitudes that others hold about them

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(Gilmore & Somerville, 1994). This self-stigma occurs when people internalize the stereotypes about their group and blame themselves for their illness (Corrigan, Watson, & Barr, 2006). Most research on internalized stigma and health related outcomes has come from the mental health field where internalized stigma is related to lower self esteem, reduced confidence and hope, decreased likelihood of adhering to or completing treatment, and an increased severity of psychiatric symptoms (Corrigan et al., 2006; Corrigan & Watson, 2002; Livingston & Boyd, 2010; Watson, Corrigan, Larson, & Sells, 2007). Similarly, for those living with HIV/AIDs greater internalized stigma is associated with poorer mental health (Lawless, Kippax, & Crawford, 1996; Logie & Gadalla, 2009; Simbayi et al., 2007), less disclosure of their HIV status (Overstreet, Earnshaw, Kalichman, & Quinn, 2013), and less social support (Lawless et al., 1996; Lee, Kochman, & Sikkema, 2002).

Research on *addiction* self-stigma is growing, with outcomes mostly consistent with those found in the mental health field (for a notable exception see Luoma et al. (2013) where higher self-stigma was associated with *longer* stays in residential rehabilitation). Limited research has examined internalized stigma among PWID specifically, but the studies that do exist are consistent with research on other stigmatized groups. For example, internalized stigma was related to increased depression and lower self-esteem (Cama, Brener, Wilson, & von Hippel, 2016) and was associated with suboptimal use of pharmacies and needle exchange programs for access to sterile injecting equipment (Rivera, DeCuir, Crawford, Amesty, & Lewis, 2014). It seems feeling negative about your self is associated with less concern about health or causing themselves harm (Fraser & Treloar, 2006).

The present research examines internalized stigma among PWID in Australia. Although Australia has a more progressive approach to illicit drug use than many countries, PWID continue to face stigma and discrimination (Treloar, Hopwood, Yates, & Mao, 2015; Wilson et al., 2014). As a consequence, they may internalize societal stigma about themselves. This study extends previous research on internalized stigma and risky behaviors by examining risky behaviors beyond needle sharing, including multiple/binge drug use and sexual risk taking. We also examine the relationship between internalized stigma and psychosocial functioning (severity of dependence; mental health), and health care and treatment access (treatment engagement; comfort in attending needle and syringe programs [NSPs]).

This research also examines *implicit* internalized stigma. Attitudes and beliefs have traditionally been measured via explicit measures, in which people are directly asked about their feelings. There has been an explosion of research on implicit measures, which allow for the assessment of attitudes and beliefs without the person being directly asked about them. A major advantage of implicit measures is they can reveal attitudes and beliefs of which people are unaware (Fazio & Olson, 2003), which is particularly relevant in this context because the link between addiction-related internalized stigma and identity may not be consciously accessible (i.e., the stigma is automatically activated and without introspection). Implicit measures may also predict important behaviors that are not accounted for by people's explicit self-reports. For example, implicit measures have been shown to predict reduction in panic symptoms among panic disorder clients in psychological treatment (Teachman, Marker, & Smith-Janik, 2008), relationship break-up among romantic couples (Lee, Rogge, & Reis, 2010), and retention in residential rehabilitation (Wolff, von Hippel, Brener, & von Hippel, 2015) beyond the impact of explicit measures. Thus, in important real-world circumstances, implicit measures sometimes predict current and future behavior better than consciously expressed beliefs and attitudes do.

The present research examines how implicit and explicit internalized stigma relates to health care and treatment access, psychosocial functioning, and risk behaviors among a sample of PWID. Based on previous research, it is predicted that PWID who have internalized the stigma will engage in more risk behaviors, have poorer mental health and psychosocial functioning, and be less engaged in treatment. We also explore whether differences emerge between implicit and explicit measures of internalized stigma.

1. Method

1.1. Sample and procedure

Participants (who were currently injecting drugs and over 18 years) were recruited from a NSP located in Sydney from May 9th to June 7th 2016. Staff informed eligible clients about the study on the three days per week that a research assistant was present. One hundred and fifteen clients (69 men; 45 women; 1 non-response) participated. The study took approximately 20 min to complete, and consisted of a self-administered computer-based questionnaire and two single category implicit association tests (SC-IATs). Participants were reimbursed $20 for their time. Data were collected over a one-month period. The study received ethics approval from the Human Research Ethics Committee at the University of New South Wales, the University of Queensland, and the relevant local health district.

1.2. Measures

The survey was pre-tested with three volunteers from a peer drug user organization who had a history of injecting. After pre-testing, slight wording changes were made to remove ambiguities and better reflect the vocabulary of PWID.

1.2.1. Demographics

Participants answered questions assessing their age, gender, sexuality, drug treatment experiences, living arrangements, education, and income (See Table 1).

1.2.2. Injecting drug use

The survey assessed age at first injecting, injecting frequency over the past two weeks, drug of choice, and how many friends inject.

1.2.3. Risk behavior

A range of risk behaviors was examined. Sharing was assessed by asking participants how often they used a needle and syringe after someone else. Participants were also asked whether they had binged on two or more drugs for an extended period of time, as the synergistic and additive effects of combining drugs increases the harms associated with drug use (Lee, Freeburn, Ella, Perry, & Conigrave, 2012; Smit, Monshouwer, & Verdurmen, 2002). Sexual risk practices were assessed with the question *Have you engaged in unprotected penetrative (anal or vaginal) sex within the last 6 months?*

1.2.4. Health care and treatment access

Two areas of health care and treatment access were explored: treatment engagement and comfort in attending NSPs. Treatment engagement was assessed with the question “When were you last in drug treatment?” using 5-point scale ranging from *currently on treatment* to *more than five years ago*. Comfort in attending NSPs was assessed with the question “How comfortable are you in attending a NSP or other service to obtain needles and syringes?” using a 5-point scale ranging from *very uncomfortable* to *very comfortable*.

1.2.5. Psychsocial functioning

Mental health was assessed with the Kessler Psychological Distress Scale (K10; Kessler & Mroczek, 1994), a ten-item scale measuring anxiety and depressive symptoms experienced in the last week (for example, *During the last week, how often did you feel nervous?*). Items were scored on a 5-point scale ranging from *none of the time* to *all of the time* with higher scores representing greater distress, depression, and anxiety. Internal reliability in this study was found to be good ($\alpha = 0.92$).

Table 1
Characteristics of the sample.

N = 115	*N* (%)
Age M (SD) (range)	42.18 (8.23) (22–58)
Gender	
Male	69 (60.5)
Female	45 (39.5)
Aboriginal or Torres Strait Islander	30 (26.1)
Sexuality	
Heterosexual	104 (90.4)
Gay/Lesbian	2 (1.7)
Bisexual	6 (5.2)
Highest level of education	
Leaving school before year 12	80 (69.6)
Completing Year 12	10 (8.7)
Trade Certificate/TAFE	16 (13.9)
University degree	8 (7)
Main source of income	
Benefits	91 (80)
Full time/part time/casual/contract work	15 (13)
No money/no income	6 (2.6)
Accommodation	
Own house/flat	10 (8.7)
Rental house or flat/boarding house/hostel	75 (65.2)
Parent's place	11 (9.6)
Streets/homeless	10 (8.7)
Drug use	
Age of first injection M (SD)	18.68 (6.88)
Frequency	
> 3 times a day	21 (18.6)
2–3 times a day	20 (17.7)
Once a day	17 (15)
Weekly	37 (32.6)
I did not inject in the last two weeks	18 (15.9)
Main drug of choice	
Heroin	36 (37.9)
Other opiates	10 (10.5)
Meth/amphetamines	36 (37.9)
Methadone	11 (11.6)
Binged on two or more drugs over an extended period	
Never	22 (19.3)
Sometimes	54 (47.4)
Regularly	38 (33.3)
How many of your friends inject?	
None	6 (5.2)
A few	32 (27.8)
Some	19 (16.5)
Most	46 (40)
All	6 (5.2)
Drug treatment experiences	
Have you ever been in any professional treatment for drug use	
Yes	93 (80.9)
When were you last in treatment	
Currently	36 (31.3)
< 1 year ago	18 (15.7)
1–5 years ago	13 (20)
> 5 year sago	13 (11.3)
Can't remember	3 (2.6)
Did you complete your last treatment?	
Yes	25 (21.7)
No	35 (30.4)
Currently on treatment	30 (26.1)

The Severity of Dependence Scale (SDS; Gossop et al., 1995) is a five-item scale used to measure the degree of dependence, anxiety, and impaired control over use of illicit substances (for example, *Over the past month, did you ever think your use of drugs was out of control?*). Responses were provided on a 4-point scale ranging from *never or almost never* to *always or almost always* with higher scores indicating greater dependence. Internal reliability in this study was found to be good ($\alpha = 0.79$).

1.2.6. Attitudes towards PWID

Rivera et al. (2014) used 5-items from Brener and von Hippel's (2008) attitudes towards PWID scale to tap internalized stigma was included to explore differences between the two explicit internalized stigma scales. Sample items include *I won't associate with known injecting drug users if I can help it* and *Injecting drug use is immoral*. Participants indicated their agreement on a five-point scale ranging from *strongly disagree* to *strongly agree*, with higher scores signifying more negative attitudes towards PWID. The scale showed good internal reliability ($\alpha = 0.81$).

1.2.7. Explicit internalized stigma

Explicit internalized stigma was assessed using a 7-item measure (Cama et al., 2016), adapted from the Internalized Stigma of Mental Illness (ISMI) scale (Boyd, Otilingam, & Deforge, 2014). Sample items include *Being an injecting drug user makes me feel dirty* and *I sometimes feel worthless because I inject drugs*. Participants indicated their agreement on a five-point scale ranging from *strongly disagree* to *strongly agree*, with higher scores signifying greater internalized stigma. The scale showed good internal reliability ($\alpha = 0.89$).

1.2.8. SC-IAT

The most well-known and widely used instrument to assess implicit attitudes is the Implicit Association Test (IAT: Greenwald, McGhee, & Schwartz, 1998). The IAT measures implicit associations by assessing response times in a computer-administered categorization task. A typical IAT involves a series of categorization tasks with multiple trials, wherein an individual is asked to categorize concepts as rapidly as possible. Because the IAT is based on comparisons between concepts, it can only measure the association of attributes of one concept relative to another (Greenwald & Farnham, 2000). With injecting drug use, however, there is no obvious contrasting category. As a consequence, the Single Category Implicit Association Task (SC-IAT) developed by Karpinski and Steinman (2006) was used, because it measures associations with a single category. As with the IAT, the SC-IAT uses response times to assess evaluation of a single concept.

Two different SC-IATs were used in this study, one to assess positive/negative feelings towards drug use and one to assess implicit identification with drug use. By combining the two SC-IATSs, the instruments can assess participants' internalized stigma. That is, participants who identify as a drug user while simultaneously indicating that drug users are bad are said to have internalized the stigma. One of the SC-IATs was adapted from an injecting drug use SC-IAT from Brener, von Hippel, and Kippax (2007). In this SC-IAT, the participant first categorizes *good* words (good, excellent, great, wonderful) on one response key and bad words (bad, terrible, awful, horrible) on a different key. Intermixed with these categorizations, participants were also asked to identify words that are stereotypically associated with the concept of *drug user* (druggie, user, junkie, injector), using the same response key as is used for the good words. The categorization task was then reversed such that words stereotypically associated with drug users were responded to on the same key as *bad* words. The implicit attitude is inferred by the relative ease with which the words stereotypically associated with drug users can be responded to on the good or bad response key (see Fig. 1).

In the other SC-IAT, participants first categorized *Me* words (I, me, mine, myself) along with these same stereotypic words regarding a *Drug User* (druggie, user, junkie, injector) on one response key and *Not Me* words (they, their, them, other) on a different key. Again, this pattern was then reversed with *Not Me* words being paired with *Drug User* on one key and *Me* words on a different key. To eliminate possible order effects, the order of the two SC-IATs was counterbalanced.

SC-IAT scores were created for each participant following the procedures of Greenwald, Nosek, and Banaji (2003). Thus, the mean latency when *me* and *drug user* shared a response key was subtracted from the mean latency when *not me* and *drug user* shared a response key. This

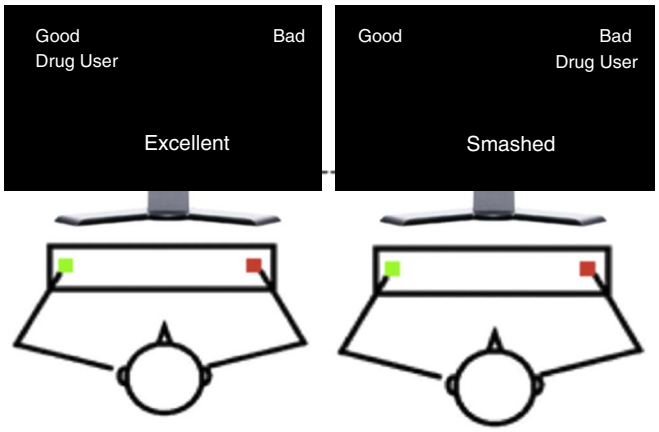

Fig. 1. Example of the SC-IAT.
Illustration of sample screens and stimuli from the implicit association with drug users SC-IAT. The category labels are placed in the top right and left corners and participants must classify the words presented in the middle of the screen as quickly as possible. The categories *good* and *drug user* are paired together on the computer screen to the left. This pairing is then reversed on the computer screen to the right (*drug user* and *bad* are paired together). The implicit attitude is inferred by the relative ease with which the words stereotypically associated with drug users can be responded to on the good or bad response key. Participants who are faster to associate *bad* with *drug user* than *good* with *drug user* are implicitly indicating that drug users are bad.

difference score was then divided by the standard deviation of all of the blended trials. As a result of this scoring procedure, higher scores on the SC-IAT represented a stronger association between self and drug use (in that *me* paired with *drug user* is being responded to more rapidly than *not me* paired with *drug user*).

For the other SC-IAT, the mean latency when *good* and *drug user* shared a response key was subtracted from the mean latency when *bad* and *drug user* shared a response key. This difference score was then divided by the standard deviation of all of the blended trials. Thus, higher scores on the SC-IAT represented a stronger association between good and drug user (in that *good* paired with *drug user* is being responded to more rapidly than *bad* paired with *drug user*).

The interaction between these two SC-IATs was used to examine internalized stigma. Internalized stigma should be associated with higher numbers on the me/not me with drug user SC-IAT and lower numbers on the good/bad with drug user SC-IAT. That is, participants who identify as a drug user (and thus are faster to associate *me* with *drug user*) while simultaneously indicating that drug users are bad (faster to associate *drug users* with *bad*) are those who have internalized the stigma.

1.3. Results

Table 1 provides a detailed description of the sample. The correlations between study variables can be found in Table 2. To the degree that participants internalized the stigma about their group (measured explicitly via the internalizing stigma scale of Cama et al., 2016), they felt less comfortable attending NSPs, had greater severity of dependence, and had more depressive symptoms. Thus, at the bivariate level, explicit internalized stigma is associated with poorer psychosocial functioning and healthcare/treatment access, but is unrelated to risk behaviors. The attitudes towards PWID scale used by Rivera et al. (2014) was correlated with the internalized stigma scale, but did not relate to any of the other study variables. Although unrelated to the primary purposes of this study, it is interesting to note that participants who had more depressive symptoms were more likely to binge on two or more drugs, had greater severity of dependence, and were less likely to share needles (possibly because they are spending more time alone).

1.3.1. Regression analyses

Hierarchical multiple regression analyses were conducted for each of the outcome variables to determine whether implicit internalized stigma accounts for significant *unique* variance in risk behaviors, health care and treatment access, and psychosocial functioning. Attitudes towards PWID (as measured by Rivera et al., 2014) and explicit internalized stigma were entered in the first step of the model; the two SC-IATs were entered in the second step; and the interaction between the two SC-IATS (indicating implicit internalized stigma) was entered in the third step. The results for all analyses are reported in Table 3. These analyses revealed that implicit internalized stigma accounts for unique variance in needle sharing and treatment engagement.

1.3.2. Risk behaviors

Only the implicit measure of internalized stigma accounted for significant unique variance in needle sharing. To decompose this interaction it was plotted at one standard deviation above and below the mean (see Fig. 2). Unexpectedly, participants were more likely to share needles and syringes if they identified as a drug user and thought drug users are *good*. That is, participants who internalized a positive view of being a drug user are more likely to share injecting equipment. None of the variables accounted for unique variance in whether participants used two or more drugs simultaneously (binge drug use) or whether participants were having unprotected sex (sexual risk taking).

1.3.3. Health care and treatment access

As can be seen in Table 3, participants who implicitly identify as drug users (i.e., faster to associate *me* with *drug user* than *not me* with *drug user*) attempted treatment longer ago than those who do not implicitly identify as drug users. The implicit measure of internalized stigma also accounted for significant unique variance in how long ago participants had attempted treatment. To decompose this interaction it was plotted at one standard deviation above and below the mean (see Fig. 3). Similar to the pattern with needle sharing, participants who identified as a drug user and thought drugs were good attempted treatment longer ago than other participants. Thus, it seems that participants who have internalized a positive view of being a drug user are less likely to pursue treatment.

Consistent with the correlation results, only explicit internalizing stigma related to comfort in attending NSPs, such that participants who had internalized the stigma indicated less comfort attending NSPs.

1.3.4. Psychosocial functioning

Consistent with the correlation results, only the explicit internalizing stigma measure related to participants' mental health and severity of dependence. Specifically, participants who had internalized the stigma had more depressive symptoms over the past week and were more dependent on drugs.

2. Discussion

PWID are widely stigmatized, being stereotyped as irresponsible, dangerous, and out of control (Smith, Earnshaw, Copenhaver, & Cunningham, 2016). As a consequence they may come to internalize these stereotypes about themselves. Previous research demonstrates a variety of negative consequences when people from stigmatized groups internalize the stigma about their group (e.g., Livingston & Boyd, 2010). In this research we examined both psychological and behavioral consequences of implicit and explicit internalized stigma among PWID.

Consistent with previous research, increased experiences of explicit internalized stigma was associated with less comfort in attending NSPs, greater depressive symptoms, and increased dependence on drugs. In contrast, attitudes towards PWID did not relate to these outcomes in the current study providing support for the findings of Corrigan et al. (2006), who note that people from stigmatized groups may believe the

Table 2
Correlations between study variables.

Variable		1	2	3	4	5	6	7	8	9	10	11
1	Implicit internalized stigma	–										
2	Explicit internalized stigma	− 0.110	–									
3	Attitudes towards PWID	− 0.075	0.531***	–								
4	Risky needle sharing behavior	− 0.175	0.067	0.021	–							
5	Healthcare access	0.059	− 0.209*	− 0.038	0.034	–						
6	Risky sexual behavior	− 0.117	0.151	0.158	− 0.037	0.175	–					
7	Psychsocial functioning	− 0.138	0.295***	0.147	− 0.215*	− 0.116	0.209*	–				
8	Severity of Dependence	0.062	0.373***	0.139	− 0.080	− 0.054	0.130	0.360***	–			
9	Binge drug use	− 0.006	− 0.122	− 0.109	0.037	0.017	− 0.098	0.244**	0.061	–		
10	Treatment engagement	0.248*	− 0.110	− 0.131	0.031	− 0.067	− 0.124	− 0.030	− 0.038	0.210		
11	Age	0.016	0.039	0.070	0.137	0.183	0.333***	0.080	0.071	− 0.210*	− 0.011	
12	Gender	− 0.026	0.144	0.037	− 0.037	− 0.097	− 0.050	0.102	0.035	− 0.159	− 0.303**	− 0.055

Note: All correlations use pairwise deletion.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

stereotypes associated with their group are true, but may nevertheless not internalize the stigma. Our explicit measure, adapted from the measure of internalized mental health stigma, taps endorsement of *self*-stigma rather than just endorsement of stereotypes (Boyd et al., 2014). Nonetheless, neither explicit measure related to risky behaviors.

Data from the implicit measure revealed those who show internalized implicit *positivity* towards PWID – that is, they implicitly identified as a drug user and thought that drug users were good, were less likely to have recently engaged in drug treatment. This finding suggests that implicit positivity about their drug use equates to a reduced perceived need for drug treatment. Alternatively, those who feel implicitly positive about being a drug user may be managing their drug use better and thus are less likely to feel that their drug use negatively impacts them, explaining why they had lower treatment engagement.

Unexpectedly, participants in this sample who showed internalized implicit positivity towards PWID were *more* likely to share injecting equipment. Such a relationship is surprising in light of previous research showing that those who engage in risky practices such as sharing injecting equipment tend to feel particularly negative about themselves, and hence are less concerned about their health or causing themselves harm (Fraser & Treloar, 2006). Instead, this research suggests that at an implicit level increased sharing of injecting equipment is related to feeling positive about being a drug user. It is not uncommon to see discrepancies between explicit and implicit measures (e.g., Fazio & Olson, 2003; Wilson, Centerbar, & Brekke, 2002). Indeed, implicit associations sometimes predict current and future behavior better than consciously expressed beliefs and attitudes do (e.g., Nock et al., 2010; Wolff et al., 2015). Nonetheless, it is not clear why implicit positivity relates to greater likelihood of sharing needles.

2.1. Policy implications

This research contributes to the small but growing literature that identifies the impact of internalized stigma on the health of PWID. These findings suggest that explicit aspects of internalized stigma act as a barrier to service access and are associated with increased depression, drug dependence, and severity of drug use. Greater dependence on drugs and poorer health outcomes result in more suffering for PWID, and pose an increased public health burden (e.g., increased risk of illness, overdose and death; possible engagement in crime to procure drugs). These effects may be exacerbated by less comfort in attending health services, which was also noted among those who report more internalized stigma. Health facilities such as NSPs serve not only as a place to obtain sterile injecting equipment but also as a means to access health information related to drug use. Some NSPs even provide brief psychosocial interventions and physical health checks as part of a comprehensive health service (Brener, Spooner, & Treloar, 2010). Reduced engagement with drug treatment facilities is therefore likely to increase the public health burden of drug use. Health workers who see PWID should be made aware of the impact of internalized stigma. PWID report that stigma by others, which leads to internalized stigma, commonly occurs in health care settings (Brener, Cama, Hull, & Treloar, 2017; Hopwood et al., 2006). The current research highlights the need to develop strategies to reduce stigma to avoid poor health outcomes for PWID and reduce the associated public health costs. Service training for health care staff should specifically address the impact of internalized stigma on these important health outcomes.

2.2. Limitations and future directions

The most notable limitation of this research is the use of a cross-sectional design, which does not allow for the establishment of causality. It is possible that sharing needles and/or minimal treatment engagement leads to implicit positivity. It is also possible that sharing needles and implicit positivity are a function of a third, unmeasured variable. This causal uncertainty also applies to the explicit measures. Greater dependence on drugs, more depressive symptoms, and less comfort attending NSPs may lead to increased internalized stigma, or they may all be caused by a third factor. Longitudinal research would help determine the potential causal role of internalized stigma on these attitudinal and behavioral measures.

Another limitation is the use of a single item to tap some of the constructs of interest, such as treatment engagement. Multiple item measures are preferable for psychometric reasons, but there is considerable evidence that single item measures are reliable and valid (e.g., Robins, Hendin, & Trzesniewski, 2001; Wanous, Reichers, Hudy, 1997). Given concerns about participant attentiveness and survey length, a single item measure was deemed appropriate to use.

Future research would also benefit by including objective behavioral indicators of health care and treatment access, psychosocial functioning, and engagement in risky behaviors, rather than relying on self-report (which is subject to errors in recall and social desirability). Nonetheless, the measures included in this research are widely used and validated self-report indicators of their respective constructs.

The generalizeability of this research should also be considered. We focused exclusively on clients attending NSPs, and thus it is not clear whether this pattern of results would emerge among people who use other substances or are attending different health services. Additionally, we cannot rule out the possibility that clients who chose to participate differed systematically from those who did not. Staff at the center believe that clients who chose not to participate did so because they did not have the time, suggesting that self-selection is not a

Table 3
Regression analysis depicting the relationships between internalized stigma and risk behaviors, health care and treatment access, and psychosocial functioning.

	Beta	t	p	R^2	ΔR^2
Needle sharing					
Explicit internalized stigma	0.036	0.315	0.754		
Attitudes towards PWID	− 0.043	− 0.382	0.703	0.005	0.005
Implicit identification with drug users	− 0.098	− 1.014	0.313		
Implicit attitude towards drugs	− 0.154	− 1.574	0.119	0.031	0.026
Implicit internalized stigma	− 0.195	− 2.019	0.046	0.067	0.037*
Treatment engagement					
Explicit internalized stigma	− 0.038	− 0.313	0.755		
Attitudes towards PWID	− 0.028	− 0.232	0.817	0.019	0.019
Implicit identification with drug users	0.243	2.279	0.025		
Implicit attitude towards drugs	0.051	0.492	0.624	0.051	0.032
Implicit internalized stigma	0.297	2.836	0.006	0.132	0.080**
Comfort in attending NSP					
Explicit internalized stigma	− 0.279	− 2.480	0.015		
Attitudes towards PWID	0.107	0.964	0.337	0.051	0.051
Implicit identification with drug users	0.064	0.672	0.503		
Implicit attitude towards drugs	− 0.078	− 0.815	0.417	0.060	0.009
Implicit internalized stigma	0.043	0.449	0.654	0.061	0.002
Binge use					
Explicit internalized stigma	− 0.107	− 0.936	0.352		
Attitudes towards PWID	− 0.050	− 0.447	0.656	0.018	
Implicit identification with drug users	0.104	1.076	0.284		0.018
Implicit attitude towards drugs	− 0.043	− 0.438	0.662	0.030	0.012
Implicit internalized stigma	− 0.008	− 0.083	0.934	0.030	0.000
Risky sexual behavior					
Explicit internalized stigma	0.089	0.797	0.427		
Attitudes towards PWID	0.091	0.823	0.412	0.031	0.031
Implicit identification with drug users	− 0.106	− 1.100	0.274		
Implicit attitude towards drugs	− 0.010	− 0.103	0.918	0.039	0.008
Implicit internalized stigma	− 0.116	− 1.210	0.229	0.052	0.013
Psychosocial functioning					
Explicit internalized stigma	0.294	2.678	0.009		
Attitudes towards PWID	− 0.004	− 0.035	0.972	0.087	0.087**
Implicit identification with drug users	0.071	0.767	0.445		
Implicit attitude towards drugs	0.036	0.382	0.703	0.096	0.009
Implicit internalized stigma	− 0.094	− 1.016	0.312	0.105	0.009
Severity of dependence					
Explicit internalized stigma	0.428	4.012	0.000		
Attitudes towards PWID	− 0.076	− 0.721	0.473	0.144	0.144***
Implicit identification with drug users	0.023	0.259	0.796		
Implicit attitude towards drugs	0.014	0.150	0.881	0.144	0.000
Implicit internalized stigma	0.108	1.194	0.235	0.155	0.011

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

significant concern. Nonetheless, future research is required to assess the generalizability of these results.

2.3. Concluding thoughts

Findings of this study highlight the importance of research into internalized stigma especially with PWID. Internalized stigma relates to a range of negative outcomes among other stigmatized groups (e.g., people living with HIV). Our research suggests these results generalize to PWID, whereby those who internalized the stigma had higher depression, greater severity of dependence, and less comfort in attending NSPs. This research also highlights the significance of assessing both explicit and implicit internalized stigma as these are associated with different health behaviors and health outcomes for PWID. Finally, the findings of this study suggest that there is still much work to be done in order to develop a better conceptual understanding of the implications of internalized stigma, particularly implicit internalized stigma, and its relationship to health outcomes and risk practices for stigmatized groups.

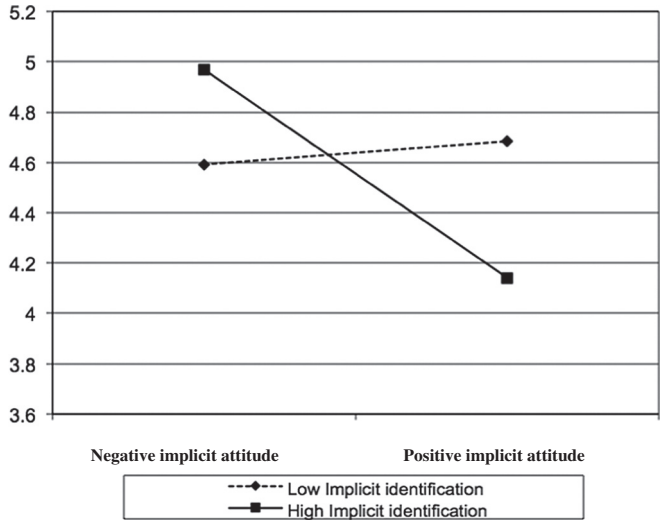

Fig. 2. Internalized stigma and needle sharing.
Needle sharing as a function of implicit identification with drugs and implicit attitudes towards drugs. Simple slopes are estimated at one standard deviation above and below the mean.

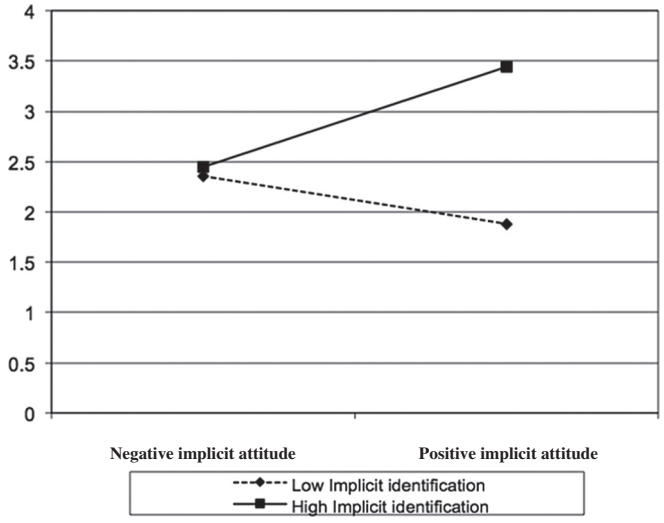

Fig. 3. Internalized stigma and drug treatment engagement.
Drug treatment engagement as a function of implicit identification with drugs and implicit attitudes towards drugs. Simple slopes are estimated at one standard deviation above and below the mean.

Conflict of interest

The authors declare no conflict of interest.

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