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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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## 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.

*Keywords:* internalized stigma; implicit associations; IAT; injecting drug use; risk behaviors

A long research tradition demonstrates that being stigmatized negatively impacts psychological health (e.g., self-esteem and emotional well-being; Bourguignon et al., 2006; Major et al., 2002, 2007) and physical health (Ahern et al., 2007; Hopwood et al., 2006; Schuster et al., 2005). Injecting drug use is a highly stigmatized behavior and people who inject drugs (PWID) receive harsh condemnation (Capitanio and Herek, 1999; Frable, 1993). PWID are stereotyped as dangerous, irresponsible, and weak (Conrad et al., 2006; Herek et al., 2003; Tindal et al., 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 and 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 et al., 2003; Hopwood et al., 2006; von Hippel et al., 2008; Wilson et al., 2014).

Over time, people from stigmatized groups can come to internalize the stigmatizing attitudes that others hold about them (Gilmore and Somerville, 1994). This self-stigma occurs when people internalize the stereotypes about their group and blame themselves for their illness (Corrigan et al., 2016). 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 & Watson, 2002; Corrigan et al., 2006; Livingston & Boyd, 2010; Watson et al., 2007). Similarly, for those living with HIV/AIDs greater internalized stigma is associated with poorer mental health (Lawless et al., 1996; Logie & Gadalla, 2009; Simbayi et al, 2007), less disclosure of their HIV status (Overstreet et al., 2013), and less social support (Lawless et al., 1996; Lee et al., 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 et al., 2016) and was associated with suboptimal use of pharmacies and needle exchange programs for access to sterile injecting equipment (Rivera et al., 2014). It seems feeling negative about your self is associated with less concern about health or causing themselves harm (Fraser and 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 et al., 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 et al., 2008), relationship break-up among romantic couples (Lee et al., 2010), and retention in residential rehabilitation (Wolff et al., 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.

## **Method**

### ***Sample and procedure***

Participants (who were currently injecting drugs and over 18 years) were recruited from a NSP located in Sydney from May 9<sup>th</sup> to June 7<sup>th</sup> 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 minutes 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.

## 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.

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

**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.

**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 et al., 2012; Smit et al., 2002). Sexual risk practices were assessed with the question *Have you engaged in unprotected penetrative (anal or vaginal) sex within the last 6 months?*

**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*.

**Psychosocial functioning.** Mental health was assessed with the Kessler Psychological Distress Scale (K10; Kessler and 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 ( $\alpha = .92$ ).

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 ( $\alpha = .79$ ).

**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 ( $\alpha = .81$ ).

**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 et al., 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 ( $\alpha = .89$ ).



**SC-IAT.** The most well-known and widely used instrument to assess implicit attitudes is the Implicit Association Test (IAT: Greenwald et al., 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 and 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-IATs, 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 et al. (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 Figure 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 et al. (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 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.

## 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).

**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.

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 Figure 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).

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 Figure 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.

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.

## Discussion

PWID are widely stigmatized, being stereotyped as irresponsible, dangerous, and out of control (Smith et al., 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 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* toward 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 toward 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 and 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 and Olson, 2003; Wilson et al., 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.

### **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 et al, 2017; Hopwood, Treloar & Bryant, 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.

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

### **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.

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## References

- Ahern, J., Stuber, J., Galea, S., 2007. Stigma, discrimination and the health of illicit drug users. *Drug Alcohol Depend*, 88(2–3), 188-196. doi: 10.1016/j.drugalcdep.2006.10.014
- Bourguignon, D., Seron, E., Yzerbyt, V., Herman, G., 2006. Perceived group and personal discrimination: differential effects on personal self-esteem. *Eur J Soc Psychol*, 36(5), 773-789. doi: 10.1002/ejsp.326
- Boyd, J. E., Otilingam, P. G., Deforge, B. R., 2014. Brief version of the Internalized Stigma of Mental Illness (ISMI) scale: psychometric properties and relationship to depression, self esteem, recovery orientation, empowerment, and perceived devaluation and discrimination. *Psychiatr Rehabil J*, 37(1), 17-23. doi: 10.1037/prj0000035
- Brener, L., Cama, E., Hull, P., & Treloar, C., 2017. Evaluation of an online injecting drug use stigma intervention targeted at health providers in New South Wales, Australia. *Health Psychology Open*, <http://journals.sagepub.com/doi/full/10.1177/2055102917707180>
- Brener, L., Spooner, C. & Treloar, C., 2010. Preventing transitions to injecting amongst young people: What is the role of Needle and Syringe Programmes. *International Journal of Drug Policy*, 21(3), 160-164.
- Brener L; von Hippel W, 2008, 'Measuring attitudes toward injecting drug users and people with hepatitis C', *Subst Use Misuse*, 43, 295 – 302. doi.org/10.1080/10826080701202627
- Brener L; von Hippel W; Kippax S, 2007. 'Prejudice among health care workers toward injecting drug users with hepatitis C: Does greater contact lead to less prejudice?', *Int J Drug Policy*, vol. 18, pp. 381 - 387, doi.org/10.1016/j.drugpo.2007.01.006

- Brener, L., von Hippel, W., von Hippel, C., 2012. Exploring the relationship between implicit self-representation and drug use. *Addiction Research Theory*, 20(2), 133-137.  
doi:10.3109/16066359.2011.580067
- Cama E; Brener L; Wilson H; von Hippel C, 2016, 'Internalized Stigma Among People Who Inject Drugs', *Subst Use Misuse*, 51, 1664 – 1668. doi: 10.1080/10826084.2016.1188951
- Capitiano, J. P., Herek, G. M., 1999. AIDS-related stigma and attitudes toward injecting drug users among Black and White Americans. *Am Behav Scientist*, 42(7), 1148-1161. doi: 10.1177/0002764299042007007.
- Conrad, S., Garrett, L. E., Cooksley, W. G., Dunne, M. P., MacDonald, G. A., 2006. Living with chronic hepatitis C means 'you just haven't got a normal life any more'. *Chronic Illn*, 2(2), 121-131. doi: 10.1177/17423953060020020701.
- Corrigan, P. W., Watson, A. C., 2002. The Paradox of Self-Stigma and Mental Illness. *Clin Psychol: Science and Practice*, 9(1), 35-53. doi: 10.1093/clipsy.9.1.35
- Corrigan, P. W., Watson, A. C., Barr, L., 2006. The self–stigma of mental illness: Implications for self–esteem and self efficacy. *J Soc Clin Psychol*, 25(8), 875-884. doi: 10.1521/jscp.2006.25.8.875
- Day, C., Ross J., & Dolan, K., 2003. Hepatitis C-related discrimination among heroin users in Sydney: drug user or hepatitis C discrimination?. *Drug Alcohol Review*, 22(3), 317-321. doi: abs/10.1080/0959523031000154463
- Elliott, A. J., Chapman, S., 2000. Heroin hell their own making: construction of heroin users in the Australian press 1992–97. *Drug Alcohol Review*, 19(2), 191-201.  
doi:10.1080/713659328
- Fazio, R. H., Olson, M. A., 2003. Implicit measures in social cognition research: Their meaning and use. *Annu rev psychol*, 54(1), 297-327. doi:10.1146/annurev.psych.54.101601.145225

- Frable, D. E., 1993. Dimensions of marginality: Distinctions among those who are different. *Pers Soc Psychol Bull*, 19(4), 370-380.
- Fraser, S., & Treloar, C., 2006. 'Spoiled identity' in hepatitis C infection: The binary logic of despair. *Crit Public Health*, 16(2), 99-110. doi: 10.1080/09581590600828683
- Gilmore, N., & Somerville, M. A., 1994. Stigmatization, scapegoating and discrimination in sexually transmitted diseases: Overcoming 'them' and 'us'. *Soc Sci & Med*, 39(9), 1339-1358. doi: 10.1016/0277-9536(94)90365-4
- Gossop, M., Darke, S., Griffiths, P., Hando, J., Powis, B., Hall, W., Strang, J., 1995. The Severity of Dependence Scale (SDS): psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addict*, 90(5), 607-614. doi:10.1046/j.1360-0443.1995.9056072.x
- Greenwald, A. G., Farnham, S. D. (2000). Using the implicit association test to measure self-esteem and self-concept. *J Pers Soc Psychol*, 79(6), 1022. doi:10.1037/0022-3514.79.6.1022
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L., 1998. Measuring individual differences in implicit cognition: the implicit association test. *J Pers Soc Psychol*, 74(6), 1464-1480. doi:10.1037/0022-3514.74.6.1464
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R., 2003. Understanding and using the implicit association test: I. An improved scoring algorithm. *J Pers Soc Psychol*, 85(2), 197. doi:10.1037/0022-3514.85.2.197
- Hepworth, J., Krug, G. J., 1999. Hepatitis C: A Socio-cultural Perspective on the Effects of a New Virus on a Community's Health. *J Health Psychol*, 4(2), 237-246.

- Herek, G. M., Capitano, J. P., Widaman, K. F., 2003. Stigma, social risk, and health policy: public attitudes toward HIV surveillance policies and the social construction of illness. *Health Psychol*, 22(5), 533-540. doi: 10.1037/0278-6133.22.5.533
- Hopwood, M., Treloar, C., Bryant, J., 2006. Hepatitis C and injecting-related discrimination in New South Wales, Australia. *Drugs: education, prevention and policy*, 13(1), 61-75. doi:org/10.1080/09687630500481150
- Karpinski, A., Steinman, R. B., 2006. The single category implicit association test as a measure of implicit social cognition. *J Pers Soc Psychol*, 91(1), 16. doi:10.1037/0022-3514.91.1.16
- Kessler R, Mroczek D., 1994. Final versions of our nonspecific psychological distress scale. Ann Arbor: University of Michigan Press.
- Lawless, S., Kippax, S., & Crawford, J., 1996. Dirty, diseased and undeserving: the positioning of HIV positive women. *Soc Sci Med*, 43(9), 1371-1377. doi.org/10.1016/0277-9536(96)00017-2
- Lee, K., Freeburn, B., Ella, S., Miller, W., Perry, J., Conigrave, K., 2012. Handbook for Aboriginal alcohol and drug work. Sydney: University of Sydney
- Lee, R., Kochman, A., & Sikkema, K., 2002. Internalized Stigma Among People Living with HIV-AIDS. *AIDS Behav*, 6(4), 309-319. doi: 10.1023/A:1021144511957
- Lee, S., Rogge, R. D., Reis, H. T., 2010. Assessing the seeds of relationship decay using implicit evaluations to detect the early stages of disillusionment. *Psychol Sci*, 21(6), 857-864. doi:10.1177/0956797610371342
- Livingston, J. D., Boyd, J. E., 2010. Correlates and consequences of internalized stigma for people living with mental illness: A systematic review and meta-analysis. *Soc. Sci.Med.* 71(12),2150–2161. doi: 10.1016/j.socscimed.2010.09.030

- Logie, C., Gadalla, T.M., 2009. Meta-analysis of health and demographic correlates of stigma towards people living with HIV. *AIDS Care*, 21:742–753.  
doi:10.1080/09540120802511877
- Link, B. G., Struening, E. L., Rahav, M., Phelan, J. C., Nuttbrock, L., 1997. On stigma and its consequences: evidence from a longitudinal study of men with dual diagnoses of mental illness and substance abuse. *J Health Soc Behav*, 177-190.
- Major, B., Kaiser, C. R., O'Brien, L. T., McCoy, S. K., 2007. Perceived discrimination as worldview threat or worldview confirmation: implications for self-esteem. *J Pers Soc Psychol*, 92(6), 1068 doi:10.1037/0022-3514.92.6.1068
- Major, B., Quinton, W. J., McCoy, S. K., 2002. Antecedents and consequences of attributions to discrimination: Theoretical and empirical advances. *Adv Exp Soc Psychol*, 34, 251-330.
- Nock, M.K., Park, J.M., Finn, C.T., Deliberto, T.L., Dour, H.J., Banaji, M.R., 2010. Measuring of suicidal mind: Implicit cognition predicts suicidal behaviour. *Psychol Sci*, 21(4), 511-517. doi: 10.1177/0956797610364762
- Overstreet, N. M., Earnshaw, V. A., Kalichman, S. C., Quinn, D. M., 2013. Internalized stigma and HIV status disclosure among HIV-positive black men who have sex with men. *AIDS care*, 25(4), 466-471 doi:10.1080/09540121.2012.720362
- Rivera, A. V., DeCuir, J., Crawford, N. D., Amesty, S., Lewis, C. F., 2014. Internalized stigma and sterile syringe use among people who inject drugs in New York City, 2010-2012. *Drug Alcohol Depend*, 144, 259-264. doi: 10.1016/j.drugalcdep.2014.09.778
- Room, R., 2005. Stigma, social inequality and alcohol and drug use. *Drug Alcohol Rev*, 24(2), 143-155. doi:10.1080/09595230500102434

- Teachman, B. A., Marker, C. D., Smith-Janik, S. B., 2008. Automatic associations and panic disorder: Trajectories of change over the course of treatment. *J Consult Clin Psychol*, 76(6), 988 doi:10.1037/a0013113
- Tindal, C., Cook, K., Foster, N., 2010. Theorising stigma and the experiences of injecting drug users in Australia. *Aust J Prim Health*, 16(2), 119-125. doi.org/10.1071/PY09026
- Schuster, M. A., Collins, R., Cunningham, W. E., Morton, S. C., Zierler, S., Wong, M., ... & Kanouse, D. E., 2005. Perceived discrimination in clinical care in a nationally representative sample of HIV-infected adults receiving health care. *J Gen Intern Med*, 20(9), 807-813. doi: 10.1111/j.1525-1497.2005.05049.x
- Simbayi, L. C., Kalichman, S., Strebel, A., Cloete, A., Henda, N., Mqeketo, A., 2007. Internalized stigma, discrimination, and depression among men and women living with HIV/AIDS in Cape Town, South Africa. *Soc Sci Med*, 64(9), 1823-1831 doi: 10.1016/j.socscimed.2007.01.006
- Smit, F., Monshouwer, K., Verdurmen, J., 2002. Polydrug use among secondary school students: Combinations, prevalences and risk profiles. *Drugs: education, prevention and policy*, 9(4), 355-365 doi: 10.1080/09687630210155313
- Smith, L. R., Earnshaw, V. A., Copenhaver, M. M., Cunningham, C. O., 2016. Substance use stigma: Reliability and validity of a theory-based scale for substance-using populations. *Drug Alcohol Depend*, 162, 34-43. doi: 1016/j.drugalcdp.2016.02.019
- Treloar, C., Hopwood, M., Yates, K., Mao, L., 2015. "Doing the devil's work": Emotional labour and stigma in expanding Needle and Syringe Programs. *Drugs: Education, Prevention and Policy*, 22(5), 437-443 doi: 10.3109/09687637.2015.1057553

- von Hippel W; Brener L; Von Hippel C, 2008. 'Implicit prejudice toward injecting drug users predicts intentions to change jobs among drug and alcohol nurses', *Psychol Sci*, 19, 7–11. doi: 10.1111/j.1467-9280.2008.02037
- Watson, A. C., Corrigan, P., Larson, J. E., Sells, M., 2007. Self-stigma in people with mental illness. *Schizophr Bull*, 33(6), 1312-1318 doi: 10.1093/schbul/sbl076
- Wilson, T. D., Centerbar, D. B., Brekke, N., 2002. Mental contamination and the debiasing problem. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 185-200). Cambridge, England: Cambridge University Press. doi: 10.1017/CBO9780511808098.012
- Wilson, H., Brener, L., Mao, L., Treloar, C., 2014. Perceived discrimination and injecting risk among people who inject drugs attending Needle and Syringe Programmes in Sydney, Australia. *Drug Alcohol Depend*, 144, 274-278. doi: 10.1016/j.drugalcdep.2014.08.018
- Wolff, N., von Hippel, C., Brener, L., von Hippel, W., 2015. Implicit identification with drug and alcohol use predicts retention in residential rehabilitation programs. *Psychol Addict Behav*, 29(1), 136. doi:10.1037/adb0000004

**Table 1: Characteristics of the sample**

	<i>N</i> =115	<i>N</i> (%)
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)
<b>Drug Use</b>		
Age of first injection M (SD)		18.68 (6.88)
Frequency		
More than 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)
Less than 1 year ago	18 (15.7)
1-5 years ago	13 (20)
More than 5 year ago	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)

**Table 2: Correlations between study variables**

Variable	1	2	3	4	5	6	7	8	9	10	11
1 Implicit internalised stigma	-										
2 Explicit internalised stigma	.110	-									
3 Attitudes towards PWID	.075	.531***	-								
4 Risky needle sharing behaviour	.175	.067	.021	-							
5 Healthcare access	.059	-.209*	-.038	.034	-						
6 Risky sexual behaviour	.117	.151	.158	-.037	.175	-					
7 Psychsocial functioning	.138	.295***	.147	-.215*	-.116	.209*	-				
8 Severity of Dependence	.062	.373***	.139	-.080	-.054	.130	.360***	-			
9 Binge drug use	.006	-.122	-.109	.037	.017	-.098	.244**	.061	-		
10 Treatment engagement	.248*	-.110	.131	.031	-.067	-.124	-.030	-.038	.210		
11 Age	.016	.039	.070	.137	.183	.333***	.080	.071	-.210*	-.011	
12 Gender	.026	.144	.037	-.037	-.097	-.050	.102	.035	-.159	-.303**	-.055

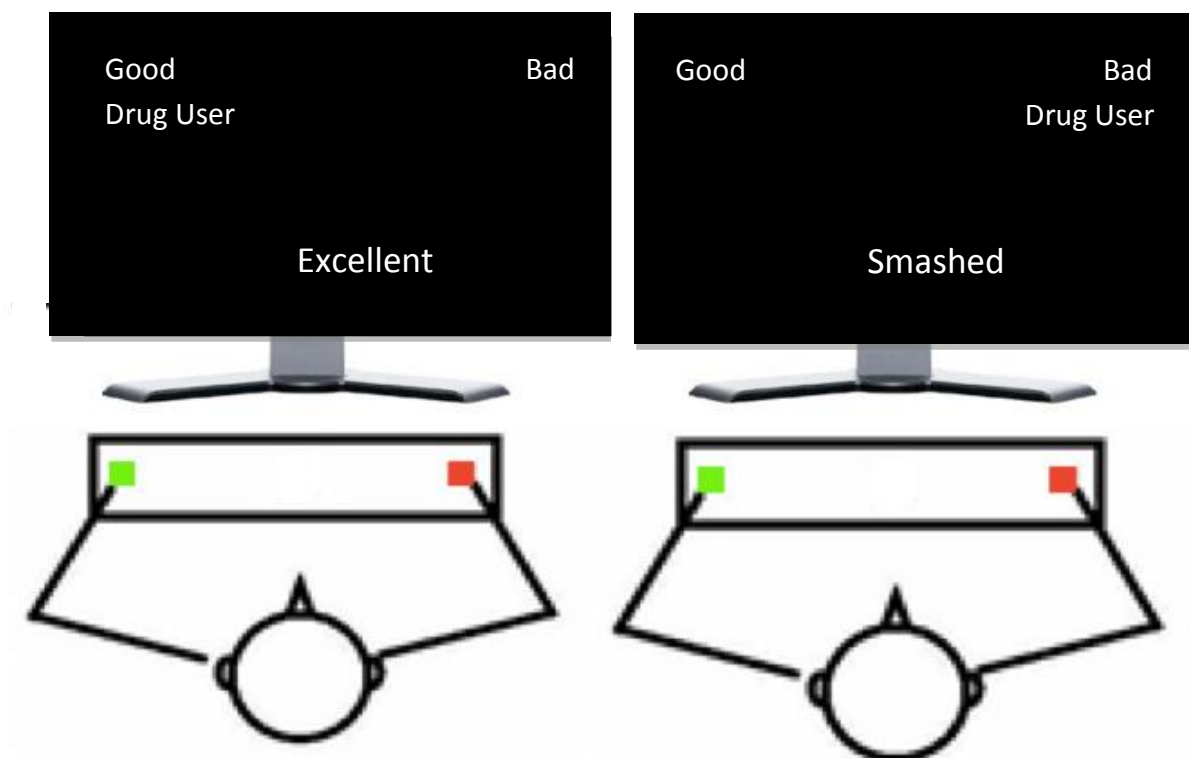
Note: All correlations use pairwise deletion. \*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

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

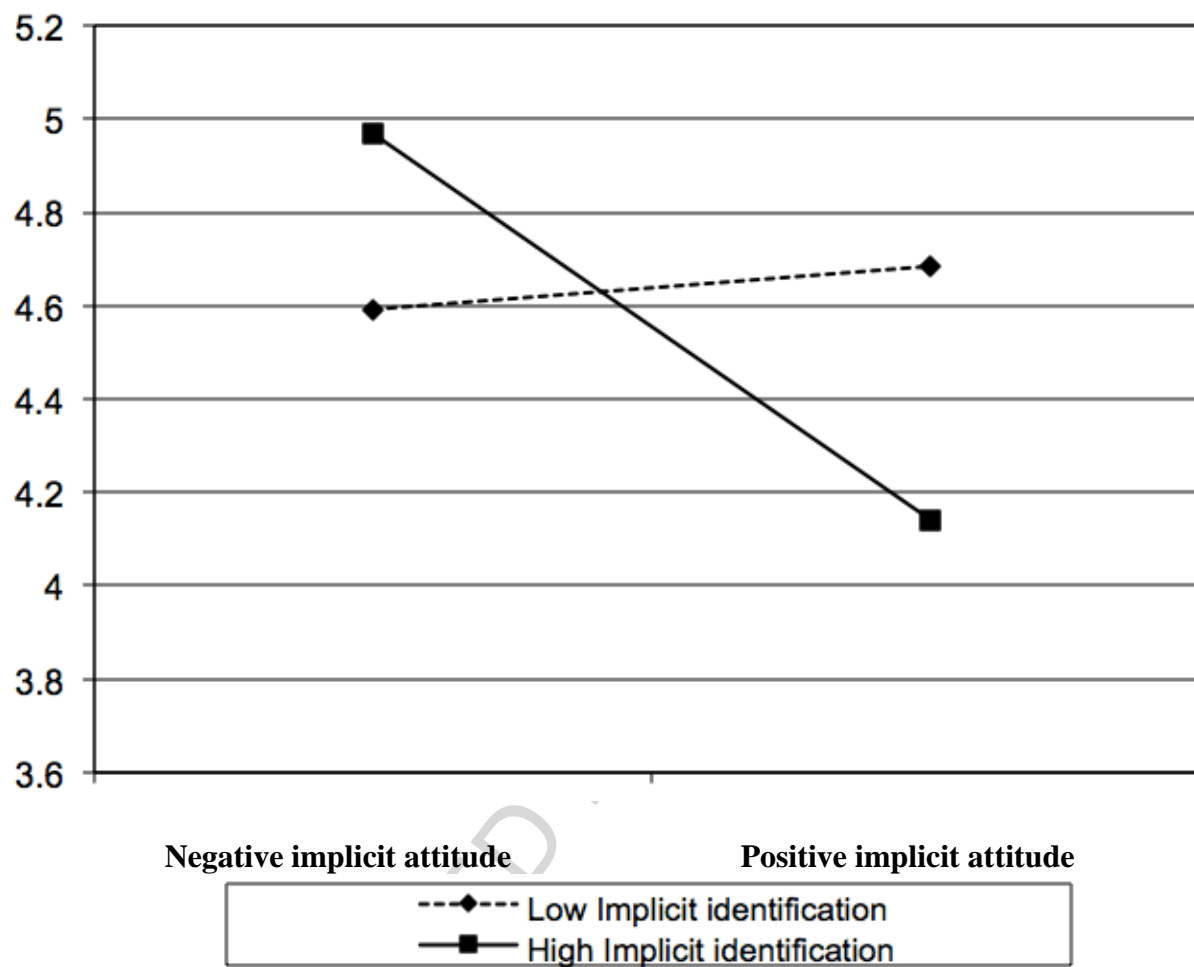
<b>Needle sharing</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Explicit internalised stigma	.036	.315	.754		
Attitudes towards PWID	-.043	-.382	.703	.005	.005
Implicit identification with drug users	-.098	-1.014	.313		
Implicit attitude towards drugs	-.154	-1.574	.119	.031	.026
Implicit internalised stigma	-.195	-2.019	.046	.067	.037*
<b>Treatment engagement</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Explicit internalised stigma	-.038	-.313	.755		
Attitudes towards PWID	-.028	-.232	.817	.019	.019
Implicit identification with drug users	.243	2.279	.025		
Implicit attitude towards drugs	.051	.492	.624	.051	.032
Implicit internalised stigma	.297	2.836	.006	.132	.080**
<b>Comfort in attending NSP</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Explicit internalised stigma	-.279	-2.480	.015		
Attitudes towards PWID	.107	.964	.337	.051	.051
Implicit identification with drug users	.064	.672	.503		
Implicit attitude towards drugs	-.078	-.815	.417	.060	.009
Implicit internalised stigma	.043	.449	.654	.061	.002
<b>Binge Use</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Explicit internalised stigma	-.107	-.936	.352		
Attitudes towards PWID	-.050	-.447	.656	.018	

Implicit identification with drug users	.104	1.076	.284		.018
Implicit attitude towards drugs	-.043	-.438	.662	.030	.012
Implicit internalised stigma	-.008	-.083	.934	.030	.000
<b>Risky sexual behaviour</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R<sup>2</sup></i>	<i>ΔR<sup>2</sup></i>
Explicit internalised stigma	.089	.797	.427		
Attitudes towards PWID	.091	.823	.412	.031	.031
Implicit identification with drug users	-.106	-1.100	.274		
Implicit attitude towards drugs	-.010	-.103	.918	.039	.008
Implicit internalised stigma	-.116	-1.210	.229	.052	.013
<b>Psychosocial functioning</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R<sup>2</sup></i>	<i>ΔR<sup>2</sup></i>
Explicit internalised stigma	.294	2.678	.009		
Attitudes towards PWID	-.004	-.035	.972	.087	.087**
Implicit identification with drug users	.071	.767	.445		
Implicit attitude towards drugs	.036	.382	.703	.096	.009
Implicit internalised stigma	-.094	-1.016	.312	.105	.009
<b>Severity of Dependence</b>					
	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>R<sup>2</sup></i>	<i>ΔR<sup>2</sup></i>
Explicit internalised stigma	.428	4.012	.000		
Attitudes towards PWID	-.076	-.721	.473	.144	.144***
Implicit identification with drug users	.023	.259	.796		
Implicit attitude towards drugs	.014	.150	.881	.144	.000
Implicit internalised stigma	.108	1.194	.235	.155	.011

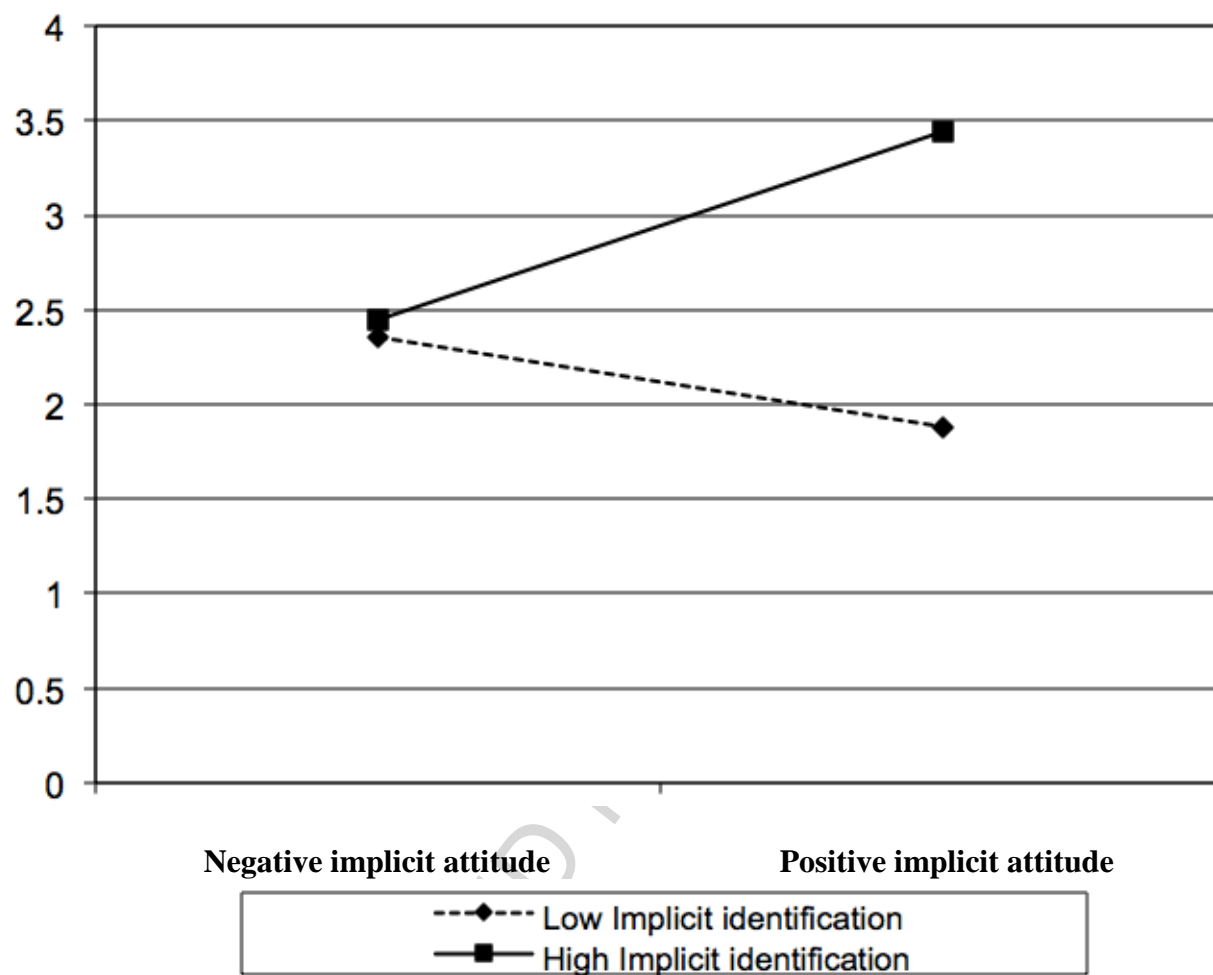
\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Figure 1: Example of the SC-IAT**

*Figure 1:* 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.

**Figure 2: Internalized stigma and needle sharing**

*Figure 2: 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.*

**Figure 3: Internalized stigma and drug treatment engagement**

*Figure 3: 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.

### 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.