

Research paper

# Prejudice among health care workers toward injecting drug users with hepatitis C: Does greater contact lead to less prejudice?

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Received 12 September 2006; received in revised form 22 December 2006; accepted 6 January 2007

## Abstract

The current research measured explicit (self-reported) and implicit (or unconscious) attitudes of health care workers and their drug injecting clients with hepatitis C virus (HCV) toward each other, and the association of these attitudes with contact. Sixty health care workers and 120 of their clients with HCV acquired from injecting drug use were administered attitude measures to determine whether greater contact with HCV positive clients would result in more favourable attitudes on the part of health care workers toward these clients, and also on the part of these clients towards their health care workers. Findings suggest that increased contact with clients with HCV is associated with more favourable explicit attitudes and more negative implicit attitudes among health care workers toward injecting drug users. Health care workers who had greater contact with HCV positive clients also had HCV positive clients who held more favourable explicit attitudes toward health care workers, but contact was uncorrelated with implicit attitudes of clients toward health care workers.

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**Keywords:** Hepatitis C; Injecting drug use; Health care workers; Prejudice; Contact; Implicit attitudes

People with the hepatitis C virus (HCV) face stigma and discrimination because of the association of this disease with injecting drug use (IDU). Studies outline discriminatory practices by general practitioners, nurses, dentists and other health care workers, often justified as correct infection control procedures. Some discriminatory practices reported include placing special infection control signs outside HCV positive patients' hospital rooms, hasty discharge from hospital so that staff do not have to work with an HCV positive patient, unwillingness by staff to perform surgical or dental procedures on HCV patients, or outright refusal to administer medical treatment (Anti-Discrimination Board of NSW, 2001; Crofts, Louie, & Loff, 1997; Day, Ross, & Dolan, 2003; Gifford, O'Brien, Bammer, Banwell, & Stooove, 2003;

Hopwood & Treloar, 2003). This is particularly worrying as many HCV positive people have regular contact with the health care system.

Research suggests that staff attitudes are an important factor in the quality of care that is provided to IDUs and people with HCV (Caplehorn, Hartel, & Irwig, 1997; Forman, Bovasso, & Woody, 2001; Humphreys, Noke, & Moos, 1996; Reid, Crofts, & Hocking, 2000). Staff beliefs about their HCV positive clients are likely to influence how they relate to clients and the quality of care afforded. Injecting drug use is a highly stigmatised behaviour that is viewed as socially unacceptable and evokes extremely negative feelings (Capitanio & Herek, 1999). It is particularly stigmatised because it is often perceived as a 'controllable stigma', and thus the individual is to be blamed rather than pitied (Crocker, Major, & Steele, 1998; Frable, 1993). Thus, IDUs with HCV face stigma on two fronts—involvement in an illegal activity and infection with blood borne virus that can be carried over into mainstream society (Lee, Kochman, & Sekkema, 2002). To ensure that people with HCV acquired from injecting drug

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use are afforded good quality health care it is important to identify factors that influence attitudes towards people with HCV.

Allport (1954) originally asserted that contact between groups under certain conditions reduces prejudice, and a large body of research in social psychology has supported this conclusion (Pettigrew & Tropp, 2006). The majority of research on inter-group contact and its effect on attitudes has examined interracial contact. In the smaller body of literature that addresses other stigmatised groups, studies also show that greater contact with a stigmatised population is associated with less negative attitudes towards that population (Herek & Capitano, 1996; Werth & Lord, 1992). This effect has been found among health care workers who work with people who are HIV positive (Bermingham & Kippax, 1998). Bermingham and Kippax assessed HIV-related discrimination among general practitioners in New South Wales, Australia, and found that discriminatory behaviours by general practitioners decreased as contact with people with HIV increased.

Based on this prior research on inter-group contact, it could be assumed that health care workers who have more contact with injecting drug users and people with HCV are likely to hold more positive attitudes towards this group. However contact does not always lead to more positive attitudes. Research also shows that there are situations in which this relationship does not hold, especially when the optimal conditions of equal group status, common goals, inter-group cooperation, and authority support are not met (Pettigrew, 1998). People who inject drugs may often be a challenging group to work with as patients, and thus medical contact with them may sometimes reinforce stereotypes about this group as chaotic and unmanageable, thereby making attitudes more negative.

Thus, the literature on inter-group contact provides evidence suggesting that contact with IDUs could lead to either more positive or more negative attitudes towards them. The aim of the current research was to examine the relationship between contact and health care workers' attitudes towards their HCV positive IDU clients. To examine this relationship in a manner that is as free from social desirability concerns as possible, the current research measured both explicit (self-reported) and implicit (or unconscious) attitudes of health care workers toward their injecting clients with HCV.

Substantial research suggests that there are differences in implicit and explicit attitudes towards stigmatised groups and that implicit and explicit attitudes differentially influence behaviour towards such groups (Gaertner & Dovidio, 2000; Wilson, Lindsey, & Schooler, 2000). IDUs are highly stigmatised, but medical models of injecting drug use as a disease may promote feelings of sympathy for those who have developed HCV as a result of injecting drugs (cf. Batson et al., 1997; Krug, 1997). As a consequence, explicit attitudes that are relatively positive towards people with HCV may coexist with entrenched, negative implicit attitudes about HCV and IDUs that are harder to change (Wilson et al., 2000).

That is, health care workers may simultaneously hold positive explicit attitudes and negative implicit attitudes towards IDUs and people with HCV.

If contact with HCV positive injecting clients has a favourable effect on health care workers' explicit attitudes then there is every chance that contact will also influence the way HCV positive IDU clients feel toward their health care workers. The beliefs that people bring to social situations about the person they are interacting with may influence the social interaction in such a way to confirm those beliefs (Snyder & Swann, 1978). For example, if health care workers have a positive attitude towards their HCV positive clients, this might increase the likelihood that these health care workers behave in a friendly manner toward their HCV positive clients, thereby leading their clients to feel more positively toward them, resulting in a self-fulfilling prophecy that confirms the original belief of the health care worker. As Copeland (1994) has shown, such self-fulfilling prophecies are particularly likely when the person with the original belief is in a position of power, as is held by health care workers in a health care setting.

Based on this line of reasoning, greater contact with HCV positive clients who inject drugs was expected to lead to mutually more positive feelings between health care workers and their HCV positive IDU clients. Whether these positive feelings would also manifest themselves implicitly is an open question that cannot be readily inferred from the extant research literature. Thus, explicit and implicit attitudes were both measured to assess these possibilities.

## Methods

### *Sample*

The sample consisted of 60 health care workers (doctors and nurses) and 120 clients with HCV acquired from injecting drug use. Health care workers and clients were recruited from the same treatment facility such that for each doctor or nurse, there were two clients with HCV. Recruitment sites were concentrated around the Sydney metropolitan area.

### *Recruitment*

Relevant services were identified through networking. The aim was to obtain a range of treatment facilities reflecting different medical experiences not solely restricted to treatment for hepatitis C. These included liver clinics, hospital drug health departments, drug and alcohol treatment facilities and general practitioners' whose surgeries were known to attract people who injected drugs. Directors of these facilities were contacted telephonically and informed of the study. If they agreed to participate, they then informed staff of the research. The researcher contacted the staff to make a time to interview the health care worker and the clients. All of the 16 facilities invited to participate agreed to do so, and 4 of the 8 gen-

eral practitioner participated. Two strategies were utilised in recruiting clients. Fliers were placed in the waiting room of services informing potential participants of the research and providing a contact number if they were interested in participating. The second strategy, which was more successful, was that the staff mentioned the research to clients who met the selection criteria (HCV acquired through injecting drug use) by asking them if they were interested in participating in the research and then referring them to the researcher.

### Procedure

#### Health care workers

To assess their explicit attitudes, health care workers were administered an Attitude to IDU Scale measuring prejudice towards IDUs ( $\alpha = .57$ ), an Attitude to HCV Scale measuring prejudice toward people with HCV ( $\alpha = .72$ ), and a Controllability of IDU Scale that measured perceptions of how controllable health care workers perceived their clients' injecting drug use to be ( $\alpha = .75$ ). These three scales were all devised for the purposes of this study and validated prior to use (see Brener and von Hippel, in press). Health care workers were also given the revised Wilson Conservatism Scale ( $\alpha = .71$ ) to assess conservative attitudes (Henningham, 1996) and a 'feeling thermometer' measuring their reported feelings toward IDUs on a scale of 0–100°. All scales except for the Conservatism scale were answered on a five-point scale ranging from *strongly disagree* to *strongly agree*. The Conservatism scale was answered on a three-point scale labelled *yes*, *uncertain*, or *no*, with low scores indicative of more conservative attitudes (five items were reverse scored). The revised Wilson Conservatism Scale was chosen not only because it is widely used, brief, and easily administered, but also because it has been shown to assess social as well as political conservatism (Henningham, 1996; Jost, Glaser, Kruglanski, & Sulloway, 2003).

The most well-known and widely used instrument used to assess implicit attitudes is the Implicit Association Test (IAT) devised by Greenwald, McGhee, and Schwartz (1998). The IAT is designed to elicit the automatic activation of implicit attitudes by assessing the strength of the association between a target concept and a negative or positive attribute (Greenwald et al., 1998). An important constraint on use of the IAT is that because it is based on comparisons between different concepts, it can only measure the differential association of attributes of one concept relative to another concept. However with injecting drug use there is no readily apparent contrasting category. In response to such situations, Karpinski and Steinman (2006) have recently developed the Single Category Implicit Association Task (SC-IAT), which is designed to measure associations with a single category. Similar to the IAT, the SC-IAT involves the use of response time to assess implicit evaluations. First, the individual responds to positive attributes and the attitude concept on one response key on a computer keyboard and negative attributes on a different key, and then this pattern is

reversed such that negative attributes and the attitude object are responded to on one key and positive attributes on the other.

The implicit attitude is inferred by the relative ease with which the attitude object can be responded to on the same key as either good or bad words. The IDU SC-IAT developed for the purposes of this study consisted of two blocks (each block has 24 practice and 72 test trials) that were completed by all participants. The IDU SC-IAT consisted of 20 words describing something good (e.g. beauty, joy, and wonderful), 20 words describing something bad (e.g. awful, misery, and terror), and 5 words describing injecting drug users (e.g. heroin injector, speed injector, and cocaine injector). Health care workers were administered the SC-IAT to assess their implicit attitudes towards IDUs.

The interview with health care workers lasted 15–20 min. All health care workers were interviewed individually at the treatment facility during work hours, with the interviewer present should they require assistance. After completing the interview, health care workers were given a gift or a gift voucher worth AU\$25.

#### HCV positive IDU clients

To assess client implicit attitudes, the HCV positive clients completed a practice Music SC-IAT before completing a health care worker (HCW) SC-IAT. Prior research suggests that a practice SC-IAT with error feedback helps decrease error rates for the SC-IAT (Gonsalkorale, 2005). Health care workers were not given this practice Music SC-IAT as it was felt that they may be more familiar with the use of computers. Additionally, they were already pressed for time, as the series of measures administered to them was longer than measures given to clients. In support of this methodological decision, substantial research (see Nosek, Greenwald, & Banaji, 2005, in press) shows that such practice on IAT-type measures does not significantly change the size of the effect revealed by the measure, nor does the order in which the concepts are tested (i.e., whether injecting drug users/health care workers are first associated with positive or negative attributes).

The HCW SC-IAT contained the same good and bad adjectives as the IDU SC-IAT, but instead of words describing IDUs, there were five words describing health care workers (e.g. doctor, nurse, and general practitioner). The remainder of the HCW SC-IAT procedure was identical to the IDU SC-IAT. To assess explicit attitudes toward health care workers, clients were also administered a health care worker 'feeling thermometer' measuring the warmth of their feelings towards health care workers on a scale of 0–100°.

The instruments were individually administered and whenever necessary the interviewer assisted the participants in completing the questionnaire on the laptop. The instruments took between 10 and 15 min to complete. The majority of participants were interviewed at the treatment facility they were attending in a confidential space. For those participants who contacted the researcher telephonically to participate in the research, a suitable location was organised to conduct the

interview. Participants were paid AU\$20 for their time and effort participating in this research.

**Results**

*Health care workers*

The health care worker sample consisted of 43 staff from drug and alcohol facilities and 16 staff from liver clinics (and one unknown). Twenty-one health care workers were doctors and two were fourth year medical students. The remainder of the sample (37) were nurses. Of the 23 doctors, 11 were female and 12 male. The nursing staff was predominantly female,  $n = 29$ . The mean age of the health care worker sample was 44 years ( $SD = 9.19$ ).

Neither health care worker age nor sex was associated with feeling towards IDUs, implicit attitudes, conservatism, perceptions of the controllability of IDU, HCV prejudice, or IDU prejudice,  $p$ 's  $> .20$ . However there were differences in some of these dependent variables as a function of whether the health care workers were doctors or nurses (see Table 1).

Overall health care workers had positive explicit attitudes towards their HCV positive IDU clients,  $M = 62.98$ ,  $SD = 19.4$ , as illustrated by the fact that this value was greater than the feeling thermometer scale midpoint of 50,  $t(59) = 5.18$ ,  $p < .001$ . As can be seen in Table 1, however, nurses felt more positively towards these clients than doctors did. In contrast the implicit attitudes of health care workers as measured by the SC-IAT towards their HCV positive IDU clients were negative,  $M = -.36$ ,  $SD = .42$ , with this mean response significantly different from zero,  $t(59) = -6.71$ ,  $p < .001$  (indicating that health care workers found it easier to associate IDUs with negative than positive attributes). Additionally, nurses had more negative implicit attitudes than doctors did (see Table 1). Health care workers' implicit and explicit attitudes were uncorrelated,  $r = -.02$ ,  $p > .85$  (a common finding in the implicit attitude literature).

Contact was measured by asking health care workers to provide a percentage estimate of their clientele who were HCV positive (see Table 1). As can be seen in Table 2, correlational analyses revealed that increased contact with clients with HCV was associated with more positive feelings towards injecting drug users as measured by the feeling thermometer. Nevertheless, increased contact was also associated with more negative implicit attitudes towards injecting drug users.

Because more conservative health care workers might choose to have less contact with people with HCV, it was important to assess whether the relationship between contact and attitudes toward HCV would remain significant when controlling for individual differences in conservatism among health care workers. Partial correlations controlling for conservatism revealed that contact predicted explicit and implicit attitudes towards IDUs beyond the effect of conservatism (see Table 2).

Table 1  
Attitudes and levels of contact among nurses and doctors

	Total sample, N=60	Nurses, N=37	Doctors, N=23	Significance
Percentage of clients who are HCV+	$M = 54.03$ , $SD = 28.7$ , range: 5–100	$M = 60.75$ , $SD = 29.60$ , range: 10–100	$M = 42.83$ , $SD = 24.49$ , range: 5–90	$F(1,57) = 5.86$ , $p < .10$
Feelings toward IDUs (feeling thermometer)	$M = 62.98$ , $SD = 19.40$ , range: 10–100	$M = 67.95$ , $SD = 20.43$ , range: 10–100	$M = 55.00$ , $SD = 14.78$ , range: 10–70	$F(1,58) = 6.96$ , $p < .05$
Implicit attitude toward IDUs (IDU SC-IAT)	$M = -.36$ , $SD = .42$ , range: -1.6 to .76	$M = -.46$ , $SD = .38$ , range: -1.60 to .22	$M = -.20$ , $SD = .45$ , range: -1.04 to .76	$F(1,57) = 5.47$ , $p < .05$
Conservatism scale	$M = 1.34$ , $SD = .30$ , range: 1–2.42	$M = 1.39$ , $SD = .28$ , range: 1–2.42	$M = 1.31$ , $SD = .33$ , range: 1–2.08	$F(1,58) = .40$ , $p > .50$
Perceptions of controllability of IDU scale	$M = 2.19$ , $SD = .74$ , range: 1–5	$M = 2.28$ , $SD = .82$ , range: 1–5	$M = 2.03$ , $SD = .59$ , range: 1–3.5	$F(1,58) = 1.64$ , $p > .20$
HCV prejudice scale	$M = 1.48$ , $SD = .42$ , range: 1–2.63	$M = 1.50$ , $SD = .41$ , range: 1–2.63	$M = 1.45$ , $SD = .44$ , range: 1–2.50	$F(1,58) = .21$ , $p > .60$
IDU prejudice scale	$M = 2.14$ , $SD = .52$ , range: 1–3.6	$M = 2.07$ , $SD = .54$ , range: 1–3.2	$M = 2.26$ , $SD = .48$ , range: 1.6–3.6	$F(1,58) = 1.92$ , $p > .15$

Table 2  
Correlations and partial correlation controlling for conservatism

	Correlation with contact (percentage of clients who are HCV+)	Partial correlation with contact (percentage of clients who are HCV+)
Feelings toward IDUs (feeling thermometer)	.33**	.35**
Implicit attitudes toward IDUs (IDU SC-IAT)	-.28*	-.28*
Controllability of IDU scale	-.19	-.22
HCV prejudice scale	-.19	-.19
IDU prejudice scale	-.25	-.28*

\*  $p < .05$ ; \*\*  $p < .01$ .

Because staff at drug and alcohol facilities reported a greater percentage of HCV clients who were current injectors (55 percent) than did staff at liver clinics (13 percent), possible differences in attitudes in these types of treatment centres could be investigated. Replicating the effect of contact in the other analyses, staff at liver clinics showed less prejudice toward IDUs when a greater percentage of their clients were current users ( $r = -.61$ ,  $p < .02$ ), a relationship that was non-significant in the other practices ( $r = -.22$ ,  $p > .10$ ). Staff at liver clinics also showed less prejudice toward people with HCV ( $M = 1.38$ ) than staff at other clinics ( $M = 1.66$ ),  $F(1,58) = 7.93$ ,  $p < .01$ , presumably because they have extensive contact with people with HCV who are not currently injecting drugs. This finding is consistent with research that suggests that HCV prejudice is driven predominantly through the association between HCV and IDU (Day et al., 2003). No other differences emerged in these analyses.

#### HCV positive IDU clients

The HCV positive IDU sample consisted of 68 males and 52 females. The mean age of this group was 38 years ( $SD = 9.02$ ). Ten percent of the HCV positive IDU sample had completed primary school only, 45 percent, had completed up to year 10, 18 percent had finished high school, 14 percent had a trade certificate, and 13 percent had attended university. While 24 percent of the sample derived their major source of income from either part time or full time work, 36 percent were receiving the dole and 35 percent a disability pension (and 5 percent of the sample chose the category 'other' to describe their main source of income). None of these demographic variables were associated with implicit or explicit attitudes.

HCV positive IDU clients showed favourable implicit attitudes toward health care workers, with mean responses significantly greater than zero,  $t(117) = 4.46$ ,  $p < .001$ . They also showed favourable explicit attitudes toward health care workers, with mean responses greater than the scale midpoint of 50,  $t(119) = 11.82$ ,  $p < .001$  (see Table 3).

For HCV positive IDU clients, greater health care worker contact with HCV positive clients was also associated with more positive explicit attitudes towards health care workers as measured by the feeling thermometer, but not with more positive implicit attitudes (see Table 4).

Table 3  
Clients' attitudes toward health care workers

	HCV positive IDU clients, $N = 120$
Feelings toward health care workers (feeling thermometer)	$M = 71.63$ , $SD = 20.04$ , range: 10–100
Implicit attitudes toward health care workers (HCW SC-IAT)	$M = .14$ , $SD = .33$ , range: $-1.14$ to $.96$

## Discussion

The findings of the current research support the contention that contact with IDUs on the part of health care workers leads to more positive explicit attitudes, even in the absence of the optimal conditions of equal group status, common goals, inter-group cooperation, and authority support. Because contact was not measured longitudinally, however, this finding could be result of selection bias, in that less prejudiced people may be more likely to choose to work with IDUs or people who have HCV. Despite this concern with correlational findings, it should be noted that contact predicted attitudes toward IDUs independent of the effects of conservatism. Additionally, nurses had more contact than doctors, and also reported more positive explicit attitudes toward their injecting clients. Staff who worked at liver clinics also showed less prejudice toward IDUs when more of their HCV positive clients were currently injecting drugs (a relationship that did not emerge in drug and alcohol facilities, where less variability was found in the percentage of HCV positive clients who were current users). Thus, these findings provide consistent evidence concerning the importance of contact, and lay the empirical groundwork that would justify the investment in longitudinal research examining the effect of contact between health care workers and injecting clients with HCV. The differential findings with various types of staff (e.g., doctors vs. nurses) and in different types of clinics (liver vs. drug and alcohol) also point to the importance of measuring contact in multiple ways in future research, and not just as a function of the percentage of clients who are IDUs or have HCV.

The relationship between greater contact and favourable explicit attitudes amongst health care workers was mirrored by clients' attitudes towards their health care workers. HCV positive clients who attended services where there were more HCV positive people reported more favourable attitudes towards their health care workers than clients who went to services where there were few people with HCV. These

Table 4  
Client attitudes and health care worker contact

	Correlation with health care worker contact with HCV+ clients	Partial correlation with contact controlling for conservatism
Feelings toward health care workers (feeling thermometer)	.29*	.30*
Implicit attitudes toward health care workers (HCW SC-IAT)	.08	.09

\* $p < .05$ ; \*\* $p < .01$ .

findings provide evidence of a reverberated benefit of contact, as not only do those who have more contact hold more favourable attitudes, but their clients have more favourable attitudes toward them as well. These findings suggest the possibility of a self-fulfilling prophecy, whereby health care workers' attitudes translate directly into clients' attitudes, presumably via positive treatment. Future research might attempt to assess differences in treatment of HCV clients associated with greater contact and more positive attitudes on the part of health care workers.

A novel finding in the current study is the association between contact and negative implicit attitudes for health care workers. This finding emerged both with greater contact in the medical practice as a whole, and between doctors (who had less contact) and nurses (who had more contact). Additionally, nurses are likely to have more direct contact with patients even in practices that report the same overall caseload of clients with HCV.

These data suggest that while health care workers who have had more contact with people with HCV show more positive explicit attitudes, they also show less favourable implicit attitudes toward IDUs. Only two other studies have assessed the influence of contact on implicit attitudes. A study by Olsson, Ebert, Banaji, and Phelps (2005) showed that a conditioning bias to fear outgroup members decreased when participants had dated members of that outgroup. Similarly Rudman, Ashmore, and Gary (2001) found that in their sample of students, those who reported making friends with members of the outgroup showed a decrease in implicit stereotyping. As might be expected, this implies a positive effect of contact on implicit attitudes. It should be noted, however, that the current findings regarding implicit attitudes must be considered preliminary at this point, as the implicit attitude measure did not predict any other behaviours or feelings in this research. Nevertheless, implicit attitudes have typically been shown to predict subtle and automatic behaviour (e.g., nonverbal responses) better than controlled and deliberative responses (e.g., decisions regarding treatment), and the current research did not provide any opportunities to measure the sort of subtle behaviours that are likely to be predicted by the implicit measures (see Nosek et al., 2005, in press). Thus, future research with these measures remains critical to the proper interpretation of these findings.

People who are prejudiced avoid contact with stigmatised groups (Herek & Capitanio, 1996). Hence it is likely that people who choose to work with injecting drug users are

those who are liberal minded and non-prejudicial from the outset. However the presence of positive explicit attitudes does not necessarily mean that people no longer hold negative biases towards the stigmatised group. These negative attitudes might still exist and continue to manifest in more subtle ways (Gaertner & Dovidio, 2000; Wilson et al., 2000). The current data on contact suggest that health care workers who choose to work with a large HCV positive client base report favourable explicit attitudes towards these clients but nevertheless hold negative implicit attitudes. This latter finding may reflect the difficulties and stresses associated with working with this client group. If so, it seems possible that the high degree of stress and increased rates of attrition noted among health care workers who treat IDUs (Skinner & Roche, 2005) might be associated with the negative implicit attitudes documented in the current findings. This would seem to be a finding that warrants further investigation in longitudinal research.

## Acknowledgements

The authors would like to thank the National Health and Medical Research Council of Australia (NHMRC) for providing funding for this research. The first author was supported by NHMRC Public Health Postgraduate Research Scholarship ID #222922. Support for this research was also provided by grants from the Australian Research Council.

## References

- Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.
- Anti-Discrimination Board of New South Wales (2001). *C Change: Report of the enquiry into hepatitis C related discrimination*. New South Wales, Sydney.
- Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L. L., et al. (1997). Empathy and attitudes: Can feeling for a member of a stigmatised group improve feelings toward the group? *Journal of Personality and Social Psychology*, 72, 105–118.
- Birmingham, S., & Kippax, S. (1998). HIV-related discrimination: A survey of New South Wales general practitioners. *Australian and New Zealand Journal of Public Health*, 22, 92–97.
- Brener, L., & von Hippel, W. (in press). Measuring attitudes towards injecting drug users and people with hepatitis C. *Substance Use and Misuse*.
- Capitanio, J. P., & Herek, G. M. (1999). AIDS-related stigma and attitudes toward injecting drug users among black and white Americans. *American Behavioral Scientist*, 42, 1148–1161.

- Caplehorn, J., Hartel, D., & Irwig, L. (1997). Measuring and comparing the attitudes and beliefs of staff working in New York methadone maintenance clinics. *Substance Use and Misuse*, 32, 399–413.
- Copeland, J. T. (1994). Prophecies of power: Motivational implications of social power for behavioural confirmation. *Journal of Personality and Social Psychology*, 67, 264–277.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., pp. 504–553). Boston: McGraw-Hill Companies.
- Crofts, N., Louie, R., & Loff, B. (1997). The next plague: Stigmatisation and discrimination related to hepatitis C infection in Australia. *Health and Human Rights*, 2, 86–97.
- Day, C., Ross, J., & Dolan, K. (2003). Hepatitis C-related discrimination among heroin users in Sydney: Drug user or hepatitis C discrimination? *Drug and Alcohol Review*, 22, 317–321.
- Forman, R. F., Bovasso, G., & Woody, G. (2001). Staff beliefs about addiction treatment. *Journal of Substance Abuse Treatment*, 21, 1–9.
- Frable, D. E. (1993). Dimensions of marginality: Distinctions among those who are different. *Personality and Social Psychology Bulletin*, 19, 370–380.
- Gaertner, S. L., & Dovidio, J. F. (2000). The aversive form of racism. In C. Stangor (Ed.), *Stereotypes and prejudice: Essential readings*. Philadelphia: Taylor & Francis.
- Gifford, S. M., O'Brien, M., Bammer, G., Bamwell, C., & Stooze, M. (2003). Australian women's experiences of living with hepatitis C virus: Results from a cross-sectional survey. *Journal of Gastroenterology and Hepatology*, 18, 841–850.
- Gonsalkorale, K. (2005). *The relationship between ingroup positivity and outgroup negativity under threat*. PhD Dissertation. University of New South Wales, Sydney, Australia.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, 74, 1464–1480.
- Henningham, J. P. (1996). A 12-item scale of social conservatism. *Personality and Individual Differences*, 20, 517–519.
- Herek, G. M., & Capitanio, J. P. (1996). 'Some of my best friends': Intergroup contact, concealable stigma, and heterosexuals' attitudes towards gay men and lesbians. *Personality and Social Psychology Bulletin*, 22, 412–424.
- Hopwood, M., & Treloar, C. (2003). *The 3D project. Diagnosis, disclosure, discrimination and living with hepatitis C*. National Centre in HIV Social Research, Monograph 6. University of New South Wales, Sydney.
- Humphreys, K., Noke, J., & Moos, R. H. (1996). Recovering substance abuse staff members' beliefs about addiction. *Journal of Substance Abuse Treatment*, 13, 75–78.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129(3), 339–375.
- Karpinski, A., & Steinman, R. B. (2006). The single category implicit association tests as a measure of implicit social cognition. *Journal of Personality and Social Psychology*, 91, 16–32.
- Krug, G. J. (1997). HCV in the mass media: The unbearable absence of meaning. In N. K. Denzin (Ed.), *Cultural studies: A research volume* (pp. 91–108). London: Jai Press Ltd.
- Lee, R. S., Kochman, A., & Sekkema, K. J. (2002). Internalized stigma among people living with HIV-AIDS. *AIDS and Behavior*, 6, 309–319.
- Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the Implicit Association Test. II. Method variables and construct validity. *Personality and Social Psychology Bulletin*, 31, 166–180.
- Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (in press). The Implicit Association Test at age 7: A methodological and conceptual review. In J. A. Bargh (Ed.), *Automatic processes in social thinking and behavior*. Psychology Press.
- Olsson, A., Ebert, J. P., Banaji, M. R., & Phelps, E. A. (2005). The role of social groups in the persistence of learned fear. *Science*, 309, 785–787.
- Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, 49, 65–85.
- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90, 751–783.
- Reid, G., Crofts, N., & Hocking, J. (2000). *Needs analysis for primary health care among the street drug using community in Footscray*. The Centre for Harm Reduction, Macfarlane Burnet Centre for Medical Research, Melbourne.
- Rudman, L. A., Ashmore, R. D., & Gary, M. L. (2001). 'Unlearning' automatic bases: The malleability of implicit prejudice and stereotypes. *Journal of Personality & Social Psychology*, 81(5), 856–868.
- Skinner, N., & Roche, A. (2005). *Stress and burnout: A prevention handbook for the alcohol and other drugs workforce*. National Centre for Research and Training on Addiction, Flinders University, Australia.
- Snyder, M., & Swann, W. B. (1978). Behavioral confirmation in social interaction: From social perception to social reality. *Journal of Experimental Social Psychology*, 14, 148–162.
- Werth, J. L., & Lord, C. G. (1992). Previous conceptions of the typical group member and the contact hypothesis. *Basic and Applied Social Psychology*, 13, 351–369.
- Wilson, T. D., Lindsey, S., & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review*, 107, 101–126.