



## Implicit and explicit attitudes toward self harm: Support for a functional model

S.E. Knowles\*, E. Townsend

Personality, Social Psychology & Health group, School of Psychology, University of Nottingham, University Park, Nottingham, NG7 2RD, UK

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### ABSTRACT

**Background and objectives:** Self harm is a serious public health problem worldwide. Implicit attitude measures offer a novel method of exploring associations with self harm (SH). Here we used implicit measures in order to (i) examine implicit evaluative and arousal associations with SH (ii) compare the discriminatory power of implicit and explicit attitude measures in a non-clinical sample at high risk of SH. **Methods:** Two experiments using Go No-Go Association (GNAT) tasks designed to tap implicit attitudes toward SH in an undergraduate sample.

**Results:** In Study One logistic regression analysis demonstrated that explicit, rather than implicit measures successfully discriminated between SH cases and controls which contrasts with previous research. Faster reaction times were observed for negative implicit associations (SH and 'I dislike') compared to positive implicit associations (SH and 'I like') for both SH cases and controls. The SH group were faster to respond to arousal implicit associations compared to implicit sedation associations. Study Two extended this finding to demonstrate associations between evaluative/arousal GNATs and self-reported functions of SH. Internal motivations for self harmful behaviour were significantly related to an implicit sedation association with SH, whereas interpersonal motivations were associated with an implicit arousal association with SH. These findings are consonant with existing functional accounts of SH.

**Limitations:** Longitudinal data is necessary to identify whether the attitudes assessed could predict future SH. **Conclusions:** The findings provide novel experimental support for the hypothesised role of automatic/affect regulation and social/interpersonal functions of SH. Implications for intervention are discussed.

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### 1. Introduction: implicit measures and self harm

Self harm and suicide are serious public health problems. In this article self harm (SH) is defined as any form of self-injurious behaviour, regardless of intention to die or not (Fortune & Hawton, 2005). While this conceptualisation recognises that such behaviours enacted with deliberate fatal intent are distinct (and would be defined as 'suicide attempts'), it recognises that self harm intentions are dimensional rather than binary (Harriss, Hawton, & Zahl, 2005), consistent with the European CASE study definition which refers to self harm irrespective of intention. This definition recognises that motivations can often be mixed or ambivalent, and is widely used in European studies (O'Connor, Rasmussen, & Hawton, 2010; Scoliers et al., 2009).

The UK has one of the highest rates of self harm in Europe, at 400 per 100,000 population (Horrocks & House, 2002). Self harm is associated with greater risk of making a suicide attempt (Nock,

Joiner, Gordon, Lloyd-Richardson, & Prinstein 2006) and is recognised as a serious clinical problem in its own right, and will be included as a disorder in DSM V (DSM-5 Childhood and Adolescent Disorders Work Group, 2009).

It is increasingly recognised that attitudes toward self harm could be important in furthering our understanding the nature of the behaviour, and consequently in designing interventions (O'Connor, Armitage, & Gray 2006). O'Connor and Armitage (2003) demonstrated that measures of social cognition and attitude could significantly discriminate individuals with and without a history of self harm. McAuliffe, Corcoran, Kelley, and Perry (2003) similarly reported that the Suicide Opinion Questionnaire (Domino, Moore, Westlake, & Gibson, 1982), one of the most widely used measures of attitudes to suicidal behaviour, could discriminate between self harm and control participants in an undergraduate sample.

Recently, studies of social cognition have examined the contribution of implicit attitude measures (Spence, 2005). Implicit measures are thought to capture associations at a different level of processing to explicit measures, tapping into attitudes that are more automatic or spontaneous (Fazio & Olson, 2003). A variety of such measures exist, with the unifying feature being that they seek to access attitudes or constructs at the implicit rather than

\* Corresponding author. Present address: Primary Care Group, University of Manchester, 5th Floor Williamson Building, Oxford Road, Manchester M13 9PL, UK. Tel.: +44 0161 275 7631; fax: +44 0161 275 7600.

E-mail address: [sarah.knowles@manchester.ac.uk](mailto:sarah.knowles@manchester.ac.uk) (S.E. Knowles).

conscious or deliberative level, for example by using reaction times to infer associative strength between concepts. Due to these potential insights, implicit measures have been recommended for studying psychopathology (Wiers, Teachman, & De Houwer, 2007).

Nock et al. have recently reported the utility of implicit measures in predicting suicidal behaviour (Nock & Banaji 2007a, 2007b; Nock et al., 2010). A further potential avenue of exploration is using implicit measures to examine the mechanisms hypothesised to underlie self harm – the functions that the behaviour serves. In the present study, we wished to expand on one finding of note in Nock and Banaji's (2007a) study, which included an evaluative attitude IAT (examining associations with 'good' and 'bad'). Both self harm and control participants showed an association between 'cutting' and 'bad' although the association was significantly stronger for control participants (Nock & Banaji, 2007a).

This finding is notably similar to studies of implicit attitudes toward drinking alcohol which found that heavy drinkers report negative implicit attitudes to alcohol. Wiers, van Woerden, Smulders, and de Jong (2002) examined the core affect dimensions of evaluative (like/dislike) and arousal (high/low affective arousal) associations with alcohol. They showed that both light and heavy drinkers had negative implicit associations with alcohol (despite positive explicit judgements), while heavy drinkers had strong alcohol-arousal associations (arousal stimuli being words such as "energetic", "funny", "lively"). The implicit measures may expose the associated function of alcohol increasing arousal states – alcoholics may 'want' to drink (due to the positive reinforcement of triggering high arousal states) but not 'like' to drink (where 'like' indicates a positive evaluation of the target itself).

It is possible that individuals who self harm, similarly, may not 'like' self harm, but 'want' to, in the sense of needing to, or feeling compelled to self harm due to arousal associations. This would be inferred if self harm was disliked on an implicit task but associated with arousal associations (whereby the arousal association reflects the 'wanting' or 'needing' that may underlie the behaviour). There is a growing body of research reporting that SH operates through negative reinforcement, serving an affect regulation function of alleviating states of aversive arousal (Gordon et al., 2010; Klonsky, 2007; Suyemoto, 1998). We predicted that individuals reporting SH would have an implicit arousal association with self harm, as it would be associated with high affective arousal levels which may trigger the behaviour (Claes, Klonsky, Muehlenkamp, Kuppens, & Vandereycken, 2010). No study to date has examined both implicit evaluative and arousal associations in SH.

We also wished to examine these associations using GNAT tasks, rather than an IAT. Both the Nock and Banaji (2007a, 2007b) and Wiers et al. (2002) studies used Implicit Association Tasks (IATs). However, the IAT assesses relative evaluations, requiring participants to evaluate two opposing target categories against each other (for example, the measuring the attitude valence of 'insects' compared to 'flowers'). SH does not have a clear opposite category. Nock and Banaji (2007a, 2007b) used the categories of "cutting" and "no cutting". An alternative solution is to employ a Go No-Go Association Task (GNAT) (Nosek & Banaji, 2001), which was developed from the IAT to allow examination of a single category. In the GNAT, participants respond to stimuli representing the target and the attribute "good", and withhold responses to other stimuli. They then respond to stimuli representing the target and the attribute "bad", and their response times across these trials are compared. Faster reaction times to the pairing of the target with either the attribute "good" or "bad" are seen as representing stronger associations between the target and that attribute, demonstrating the valence of the individuals' implicit attitude to the single target.

Furthermore, we wished to examine these associations in a non-clinical sample. It is increasingly recognised that non-clinical

adolescents and young people report engaging in SH (Hasking, Momeni, Swannell, & Chia, 2008; Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007) and it is necessary, therefore, for models of the behaviour to be examined in non-clinical as well as patient populations. To date, studies of implicit attitudes in suicidal populations have focused only on clinical samples. Undergraduates are recognised as one non-clinical population where SH is prevalent (Whitlock, Eckenrode, & Silverman, 2006). We also aimed to compare attitudes on the implicit measures to an established explicit measure of attitude, the Suicide Opinion Questionnaire, and to examine the relative discriminatory power of the explicit and implicit measures in predicting SH status.

## 2. Study one: investigating evaluative and arousal associations with SH

### 2.1. Material and methods

#### 2.1.1. Sample

156 participants responded to an advert sent to a research group mailing list of approximately 1100 undergraduates for an online questionnaire study of psychological distress, a response rate of 13%. All questionnaire participants were invited to the experimental study. 72 (82% females) responded and completed the experimental study (a response of 46%). SH cases were identified by their response to an online questionnaire which included the question "Have you ever self harmed?", followed by a checklist of possible methods of self harm. This measure was adapted from two large community surveys of self harm in the UK (Hawton, Rodham, Evans, & Weatherall, 2002; O'Connor et al., 2009) to ensure validity for a UK community sample. 24 participants (33%) reported SH by reporting at least one method of self harm from the checklist in the last 12 months and were classed as case participants (consistent with Nock and Banaji (2007b) who defined cases as those reporting either suicide ideation or attempted suicide in the past year).

#### 2.1.2. Measures

**2.1.2.1. Explicit attitude measure.** The SOQ measures 8 factors including 'normality', 'cry for help' and 'morally bad'. The questionnaire asks participants to rate how strongly they agree or disagree with statements that reflect each construct (such as 'suicide is normal', 'suicide is a cry for help'). High scores indicate greater agreement. The questionnaire has been shown to discriminate between students who have attempted suicide, contemplated suicide and controls (Limbacher & Domino, 1985).

**2.1.2.2. Implicit attitude measures.** The GNAT requires participants to respond to certain categories (Go) and not to others (No Go). In the first condition (block of trials) of the valence GNAT participants responded to words belonging to the categories of "self harm" and "good". In the second condition they respond to words belonging to the categories of "self harm" and "bad". In the arousal GNAT, participants responded to "self harm" and "arousal" categories in the first block and "self harm" and "sedation" in the second block. The order of presentation was counterbalanced, both within tasks (which block of the particular GNAT was presented first) and between tasks (which GNAT the participant completed first). For the purposes of examining affect regulation, "arousal" was operationalised as "I'm alert" and "sedation" was operationalised by contrast as "I'm relaxed." Stimuli for the GNAT are presented in Box 1. Stimuli were chosen as recognisable instances of each category. In implicit tasks, participants make responses to the category labels rather than to the individual exemplars (De Houwer, 2001) as long as the stimuli are not distinct enough to prompt the participants to

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