

Negative intrusive thoughts and dissociation as risk factors for self-harm

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Running head: Intrusive thoughts, dissociation and self-harm

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Abstract

Relationships between self-harm and vulnerability factors were studied in a general population of 432 participants, of whom 30% reported some experience of self-harm. This group scored higher on dissociation and childhood trauma, had lower self worth, and reported more negative intrusive thoughts. Amongst the non-harming group, 10% scored similarly to the self-harmers on the dissociation and self worth scales, and engaged in 'potentially maladaptive' behaviors that are not defined as indicating clinical self-harm, but experienced fewer negative intrusive thoughts. This group may be 'at risk' of future self-harm if they begin to experience negative intrusive thoughts. If negative intrusive thoughts are playing a causal role then therapeutic approaches tackling them may help those who are currently self-harming.

*Keywords: self harm, intrusive thoughts, risk factors, dissociation, childhood trauma.*

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## Introduction

This paper examines risk factors for self-harm in a non-clinical population, and investigates the nature of intrusive thoughts in people who self-harm, and how these differ from those of people who do not.

The majority of self-harm research investigates the causes after self-harm has led to clinical intervention. However, this can be problematic since self-harm is associated with many mental health diagnoses (alongside its presence in non-clinical groups), and so limiting samples to people in treatment risks overestimation of the association between self-harm and other psychopathologies (Klonsky, Oltmanns & Turkheimer, 2003). Therefore, it is essential to look at the precursors of self-harm in people who are at risk of presenting clinically but who have not yet done so.

Gratz (2003) defines self-harm as “the deliberate, direct destruction or alteration of body tissue, without conscious suicidal intent but resulting in injury severe enough for tissue damage to occur” (p.253). This definition is particularly useful with non-clinical groups, as it allows for the study of less severe forms of self-harm, such as skin picking and hair pulling (referred to hereafter as ‘mildly harmful’). The term ‘direct’ avoids the inclusion of risky behaviors such as extreme sports and body art, avoiding spurious overestimation. Recorded episodes of self-harm in the United Kingdom are around 400 per 100,000 population (Horrocks, 2002), but the true incidence is thought to be far higher because a large proportion of people who engage in self-harm will never seek help (Samaritans, 2005). A survey conducted by the Department of Health in 2000 (Meltzer et al., 2000) suggested that around one half of those engaging in self-harm and non-fatal suicide attempts seek professional help, although this too is a conservative estimate. Indeed, US studies have found rates of 4% in the general population, 4% amongst military recruits and 14% or more in a university undergraduate population (Klonsky, 2007). Also, a recent study with 18-20 year olds found rates of 14% who had self-harmed at some point in their lives and 7% who were currently self-harming (Young et al., 2007). Since self-harm represents the highest risk factor for later completed suicide (Prinstein, 2008), the implications for understanding self-harm are wide reaching.

Here we report the results of a questionnaire survey intended to identify those at risk before they engage in self-harming activity. This is done by examining risk factors in the form of behaviors and background characteristics identified in the literature as being

associated with self-harm, and by investigating whether these are associated with self-harm episodes in a non-clinical population. These risk factors include personal circumstances (including childhood experience and sense of self); dissociation and intrusive thoughts.

### Personal circumstances

Two major reviews of self-harm risk factor literature (Starr, 2004; Gratz, 2003) were examined in order to identify psychological and psychosocial factors that were associated with self-harming behaviors. The Starr paper reviews antecedents and theories of self-harm with a view to improving levels of nursing care provided to patients engaging in such activities. The Gratz review looked specifically at the literature on the following risk factor categories: childhood sexual and physical abuse; neglect; childhood separation, loss and attachment and individual risk factors alongside their interactions. The reviews identified childhood trauma and low self-worth (including self-blame, loss of sense of control and unstable sense of self) as significant causes of later self-harm, along with poor problem-solving ability and impulsivity, factors that we here label as personal circumstances. A further literature review by Webb (2002) found similar correlates of self-harm in studies with adolescent clinical samples. This review also identified various mental health diagnoses as associated with self-harm. For this reason we included a screening question on whether participants had ever been diagnosed with a mental health problem. Further data was not collected on this for two reasons, partly because the sample for this study was taken from a general population, and partly because of a need to keep the overall questionnaire relatively short and straightforward to complete.

Childhood trauma has been found to be strongly associated with self-harming behavior in a number of studies. For example, in women with a history of childhood sexual abuse (Romans et al., 1995) and in a psychiatric inpatient population (with experience of childhood physical or sexual abuse) in situations where current stressors triggered a return to feelings associated with the trauma. In this case the self-harm is thought to facilitate feelings of relief, or to help patients feel in control of the previously unmanageable situation (Van der Kolk et al., 1991). In fact, this finding can extend from abuse to neglect (Sansone et al., 2002); family cohesiveness, structure and other parenting factors (Webb, 2002) and even perceived parental criticism (Yates et al., 2008). From the childhood trauma risks we derived the following eight items:

- CT1 I experienced a traumatic event/ series of events in my childhood
- CT2 I would describe my family background as dysfunctional in some way
- CT3 As a child I felt understood by my parents/ caregivers
- CT4 As a child I felt that my parents/ caregivers listened to me
- CT5 I have been abandoned by someone important to me at some time in my life
- CT6 Somebody in my family has a history of problematic alcohol or drug use
- CT7 I find it difficult to trust other people
- CT8 I experience flashbacks

People who self harm tend to have a less positive self concept (e.g. Hawton et al., 1999), and Tulloch et al. (1997) found that vulnerability for self-harm in adolescents related to a tendency to self-blame as a result of an internal locus of control. Self-harm can also function as a way of regaining a sense of control over one's life and emotions (e.g. Briere and Gil, 1998). This section of questions also included items relating to positive sense of self and personal boundaries, as well as ability to tolerate being alone. These relate to Object Relations Theory (see Gallop, 2002) which suggests these factors as part of a model of self-harm linking childhood experience and self-harming behavior. The low 'self worth' risks discussed by Starr (2004) and Gratz (2001) provided ten items:

- SW1 I have low self-esteem
- SW2 When things go wrong in my life it is usually my own fault
- SW3 I am in control of my life
- SW4 I am a good person
- SW5 I view myself in a positive light
- SW6 I hate being on my own
- SW7 I am a worthwhile person
- SW8 I have a clear sense of who I am
- SW9 I have a clear sense of my own personal boundaries
- SW10 I am a competent person

Self harm is often considered to be impulsive behavior and in a study of adolescents, was found to separate groups of self-harmers and non harmers (Kashden et al., 1993). In that study problem solving was not found to have an effect but Rotherham-Borus et al. (1990) found problem solving to be a good predictor of self harm in female suicide attempters, and another study found a similar result in adolescents (Nock & Mendes, 2008). Further, Kingsbury et al. (1999) suggest an interaction between poor problem solving and impulsivity in adolescents with a tendency towards self harm, with impulsivity acting as an interruption to problem solving. We included two items that related to impulsivity and problem solving, respectively:

IMP I often act impulsively, without first thinking through my actions

PS I often struggle to find solutions to problems

#### Dissociation

Dissociation is thought to have an important role in self-harming behavior (Gratz et al., 2002). It is strongly associated with childhood trauma (also common in self-harming individuals), and may be a response to overwhelming emotional pain, in the form of an initial adaptive response to trauma that individuals then generalise to all stressful life events (Low et al., 2000). One purpose of self-harm may be to enable disruption of a dissociative state, by providing something physical for the individual to focus on and to help them return themselves to their current experience. This can allow them to feel something following the dissociative episodes of feeling nothing which can be triggered by the absence of loved ones (Klonsky, 2007). Dissociation may indeed be the link between child abuse and self-harm (Chu & Dill, 1990).

Accordingly, we included items from a version of the Dissociative Experiences Scale (DES – Bernstein & Putnam, 1986) that is designed for use with non-clinical groups, the DES-C (Wright & Loftus, 1999). This scale differs from the clinical version of the DES in that it uses a different scoring system for items. Instead of simply asking people to rate how often they experience a particular phenomenon, the DES-C asks participants to rate their experience compared to other people. This shift in scoring system was due to data being highly skewed when the original version was used with the general population and Wright & Loftus (1999) report that it produces a more normal distribution. Both the DES and the DEC-C are 28-item measures. For this study we selected six items from the

‘depersonalization/derealization’ subscale (D), because these seemed to best capture the aspects of dissociation most relevant to self-harm, and four items from the ‘absorption/distractibility’ subscale (A), as they represented experiences that appeared most ‘normal’ for a non-clinical group. We expected the Depersonalization items to be associated with self-harm, but not the absorption items.

- D1. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as if they are looking at another person.
- D2. Some people have the experience of looking in a mirror and not recognising themselves.
- D3. Some people have the experience of feeling that other people, objects and the world around them are not real.
- D4. Some people have the experience of feeling that their body does not seem to belong to them.
- D5. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing
- D6. Some people sometimes feel as if they are looking at the world through a fog so that people and objects appear far away or unclear.
- A1. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them.
- A2. Some people find that sometimes they are listening to someone talk and they suddenly realise they did not hear part or all of what was said.
- A3. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them.
- A4. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time.



## Intrusive Thoughts

Intrusive thoughts are those that seem to occur spontaneously, without effort or origin, and interrupt cognitive ability (Clark, 2005). They are common in the general population but also play an important role in many mental health diagnoses (Purdon, 1999). Intrusive thoughts have been implicated in the development and maintenance of depression and often take the form of intrusive memories (Reynolds & Brewin, 1999). Since self-harm is especially common in depression (Patel et al., 2007), the role of intrusive thoughts may be similar, and therefore may represent a further self-harm risk factor. We included a set of items intended to measure the frequency, content, and consequences of intrusive thoughts:

- IT1. How often (on average) do you experience intrusive thoughts?  
Never; Less than once a day; Once a day; Several times a day; Every time I try to concentrate on something.
- IT2. Please specify what sorts of things you often have intrusive thoughts about:  
Food or drink; Positive thoughts about myself; Negative thoughts about myself; Activities (e.g. sport etc.); Harming myself; Happy memories; Unhappy memories; Something else.
- IT3. How much do these thoughts distract you from everyday tasks?  
Not at all, they just occur and then disappear; Only momentarily; Somewhat - it takes some effort to stay focused on the task; Quite a lot - it is hard to get back to what I was doing; Very much - I have to act on the thought before I can do anything else
- IT4. Approximately how often are these thoughts distressing?  
Never; Up to 30% of the time; 31-50% of the time; 51-80% of the time; 81-99% of the time; All of the time

The next set of items was taken from the EBRIQ (Berry et al., in press), which examines emotional and behavioral reactions to intrusive thoughts. The instructions defined an intrusive thought, and asked people to rate their reactions to them:

- R1. It makes me feel I am losing control of my thoughts
- R2. It makes me feel miserable
- R3. It distracts me from what I am doing
- R4. I act on the thought

R5. It makes me anxious

R6. It interferes with how well I carry out what I'm doing

R7. It makes me irritable

### Self-harming status

The final set of items was intended to discriminate between those with experience of self-harm behaviors and those without.

The first question (SH1) listed coping strategies to stress and patterns of behavior relating to self-harm. This question began 'When you feel stressed, low or anxious, which of the following behaviors do you engage in:' followed by a list of behaviors forming five categories: six severe self-harming (strictly defined according to Gratz's definition), two mildly harmful compulsive behaviors ('mildly harmful'), nine 'potentially maladaptive' activities (which might also be harmful, if not directly, or immediately), two avoidant, and six positive (see Table 1). The potentially maladaptive category of responses included a wide range of behaviors that might have some form of adverse effect. These included those where this was obvious (such as smoking and drug use) and those where the effects may be less instantly recognizable (such as exercise and nail biting). For example, someone may cope with their stress by exercising which may appear outwardly positive, but may lead to excessive exercise and risk of injury. It was expected that some of the items in this category might be associated with the more serious self-harming behavior, whilst some will not, hence the title 'potentially maladaptive'. The behaviours were intermixed and their coding was not included in the item text shown to respondents, who could check as many or as few as they wanted to.

Then came a series of items directly assessing self-harming behavior (past and present) along with regularity, frequency, and time scale:

SH2. Have you ever harmed yourself in a way that is outside the bounds of social acceptability (such as by cutting, burning, pulling out body hair etc.?)

No; Yes.

SH3. If yes did you do so regularly over a period of time?

No; Yes; Not Applicable.

SH4. How frequently?

Not applicable; Less frequently than once a month; Once a month; Once every two weeks; Once a week; 2-3 times a week; 4-6 times a week; Once a day; More than once a day.

SH5. For how long?

Not applicable; Less than a month; 1-3 months; 3-6 months; 6 months to 1 year; 1-2 years; more than 2 years.

SH6. Do you currently harm yourself in such a way?

No; Yes.

SH7. If yes do you do so regularly?

No ; Yes ; Not Applicable.

SH8. How often?

Not applicable; Less frequently than once a month; Once a month; Once every two weeks; Once a week; 2-3 times a week; 4-6 times a week; Once a day; More than once a day.

SH9. How long have you harmed yourself in such a way for?

Not applicable; Less than a month; 1-3 months; 3-6 months; 6 months to 1 year; 1-2 years; more than 2 years.

## Method

The 50 items described above were combined into a four page online survey. Page one contained the Childhood Trauma (CT), Self Worth (SW), Impulsivity and Problem Solving items, rated on a seven point scale, with zero labelled 'not at all true of myself' and six labelled 'very true of myself'; the midpoint (3) was labelled 'neither true nor untrue'. Page two contained the Depersonalization (D) and Absorption (A) items from the Dissociative Experiences Scale, rated 0-10 with the anchors 'much less than others' (0), 'about the same as others' (5), and 'much more than others' (10). Page three contained the Intrusive Thoughts (IT) items, with the scales as listed above, and the Reaction (R) items, rated 0-4 with the anchors: never; rarely; sometimes; often; every time. Page four contained the self-harm (SH) items, with scales as described above, together with two final questions asking if the respondents would like to be entered for a prize draw, and if we could contact them for a follow-up.

Participants were recruited through an advert on the university web portal (accessible to approximately 1300 academic staff, 4500 non-academic staff, 18000 undergraduate and 5600 postgraduate students), and were offered entry in a £50 prize draw as a reward for participation. The study met BPS ethical guidelines and was approved by the departmental ethics committee. The study was advertised as investigating how people 'deal with stress'.

The questionnaire was hosted on the researcher's web space on the university web pages. Initially participants were asked to fill in their university username and basic demographic information. A link to the questionnaire proper was then sent to their password protected university email account, to ensure that people could only reply once, and that all participants were who they claimed to be. The survey was made available for three weeks.

## Results

432 members of the university (308 females; mean age of sample 25.1 years) completed the survey. Email addresses indicated that 270 respondents were undergraduate students (mean age 21.1 years; 187 females), the remaining 162 being postgraduates or staff (mean age 31.8 years; 121 females). Overall, 208 respondents were aged 18 to 21 (144 females), and 224 were aged over 21 (164 females).

## Self-harm and Coping Behavior

On Item SH1 regarding how participants cope with stress, 61 participants (14.1%) endorsed one or more of Gratz's six severe self-harming responses (47 reporting one behavior, 12 reporting two behaviors, and two reporting three behaviors). The number of items endorsed was not contingent upon age group or sex.

On Item SH2 102 people (23.6%) answered that they had previous experience of self harm, and this was more commonly reported by younger respondents (N=61, 29%) than by the older respondents (N=41, 18%), Fisher Exact 2-tailed  $p=.009$ , but was not contingent upon sex (males N=24, 19%; females N=78, 25%; Fisher Exact 2-tailed  $p=.211$ ).

On Item SH6 11 people (2.5%; 5 younger and 6 older respondents; 10 females and 1 male) answered that they currently self-harmed. The low number of individuals endorsing this item make statistical inferences unsafe, but Fisher Exact 2-tailed tests do not suggest any contingency with age group ( $p=1$ ) or sex ( $p=.190$ ).

Overall, 131 people (30.3%; 75 aged 21 or under, 98 females) reported some prior or current experience of self-harm from at least one these three items, with 36 of these (19 younger and 28 female respondents) making self-harm responses to two or more of the three items. These 131 were compared with the 301 people who did not endorse any of the severe self-harm items on SH1, and answered 'no' to both items SH2 and SH6.

Overall, 362 (86.8%) people endorsed one or more of the mildly harmful or potentially maladaptive activities listed in item SH1 (see Table 1). Fisher Exact tests showed there to be a significantly higher proportion of the self-harm group reporting each of the mildly harmful activities (skin picking and hair pulling), and four of the nine potentially maladaptive activities (excessive eating, under eating, smoking and general risk-taking behavior). Unexpectedly, self-harmers were also significantly more likely to report letting off steam in a way that causes no harm, which had been included as a positive activity.

The same pattern of results was obtained when the analysis was repeated separately for each sex, except that amongst males, there were stronger associations between self-harm and smoking ( $p=.003$ ), and weaker associations with excessive eating ( $p=.233$ ) than amongst females ( $p=.170$  and  $p=.032$ , respectively). Repeating the analysis separately for the two age groups showed that excessive eating was also more likely to be associated with self-harm in the 18 to 21 age group ( $p=.017$ ) than the over 21 group ( $p=.20$ ), where there was a stronger association with smoking (18 to 21  $p=.090$ , over 21  $p=.042$ ). The contingency between self-harming and not talking to a friend or family member was also higher amongst the younger respondents ( $p=.014$ ) than the older group ( $p=.241$ ).

The non-harmers were divided into three risk status groups according to the number of these seven activities that they reported. Those reporting none or one of them ( $N=182$ , 60%) were defined as 'low risk', those reporting two ( $N=89$ , 30%) were defined as 'medium risk', and those reporting three or more ( $N=30$ , 10%) were defined as 'high risk' (amongst the self-harm group, the corresponding  $N$ s were 36, 28%; 50, 38%; and 45, 34%).

There was no association between this risk group status and whether the respondents were aged 18 to 21 (Chi-square=1.68,  $df=2$ ,  $p=.432$ ), but males were more likely to be classed as low-risk (Chi square=15.5,  $df=2$ ,  $p<.001$ ), with 69 of the non-harming males (76%) being low risk, compared to 113 (54%) of the non-harming females. Only 2 males (2%) were classed as high risk, compared to 28 females (13%), with 20 (22%) being medium

risk, compared to 69 females (33%). Because so few males were identified as high-risk, analyses that follow of this group are not broken down further by sex.

### Personal Background

The twenty Childhood Trauma, Self Worth, Impulsivity and Problem Solving items were entered into a Factor Analysis (Maximum Likelihood, Direct Oblimin). Although five factors had Eigen values above 1, the Scree test (Cattell, 1966) indicated a two or three factor solution. The three factor solution distinguished the Self Worth items from the Childhood Trauma items, which split into two factors (one containing the reverse-scored items 'my parents understood' and 'my parents listened', CT3 and CT4), and so the two factor solution was preferred, with the Childhood Trauma and Self Worth items on different factors. The impulsivity and problem solving items did not load highly on either factor.

Five of the Childhood Trauma items and nine of the Self Worth items had unique correlations above .40 with their respective factors, and so two scores were obtained by finding the means of these two sets of items for each respondent (with items CT3, CT4, SW1 and SW2 being reverse-scored). The items that were excluded were 'family drug use' (CT6), 'difficult to trust people' (CT7), 'experience flashbacks' CT8 and 'I hate being on my own' (SW6).

Both combined scales differed between the groups of self-harmers and non-harmers, with self-harmers reporting more childhood trauma (on a scale from 0 to 7, self-harmers  $M = 2.59$   $SD = 1.59$ , non-harmers  $M = 1.95$   $SD = 1.32$ ,  $t(430)=4.35$ ,  $p<0.001$ ) and lower self worth (self-harmers  $M = 3.52$   $SD = 1.06$ , non-harmers  $M = 4.10$   $SD = 0.83$ ,  $t(430) = 6.11$ ,  $p<0.001$ ). The older respondents also scored higher than the 18 to 21 year old respondents on self worth (over 21  $M=4.05$ ,  $SD=0.93$ ; 18 to 21  $M=3.79$ ,  $SD=0.95$ ;  $t(430)=2.93$ ,  $p=.004$ ) and on childhood trauma (over 21  $M=2.30$ ,  $SD=1.48$ ; 18 to 21  $M=1.98$ ,  $SD=1.375$ ;  $t(430)=2.35$ ,  $p=.019$ ). Males and females did not differ on either scale.

Of the excluded items from these two scales, only the 'family drug use' item CT6 differed between the self-harmers ( $M = 1.68$   $SD = 2.38$ ) and non-harmers ( $M = 1.10$   $SD = 2.00$ ),  $t(430)=2.42$ ,  $p=.016$ ). The impulsivity item did not differ between the groups ( $t(430)=0.48$ ,  $p=.641$ ), but problem solving difficulty was higher in the self-harmers ( $M = 2.79$   $SD = 1.52$ ) than non-harmers ( $M = 2.47$   $SD = 1.54$ ),  $t(430)=1.99$ ,  $p=.049$ ).

Within the non-harming group, one-way ANOVAs showed that self worth and childhood trauma were related to risk-status (self worth  $F(2,298)=5.28$ ,  $p = .006$ ,  $\eta^2=.03$ ; childhood trauma  $F(2,298)=6.47$ ,  $p = .002$ ,  $\eta^2=.04$ ), but that none of the other six items were. Post-hoc tests (Tukey's HSD) showed that childhood trauma increased with increasing risk status, with the low and high-risk groups differing significantly ( $p=.004$ ), but with no significant differences between the low and medium ( $p=.068$ ) or medium and high ( $p=.223$ ) risk groups. The pattern for self worth was less clear, with the medium risk group scoring lower than the low risk group ( $p=.005$ ), but also lower than the high-risk group, albeit not significantly so ( $p=.778$ ). The low and high risk groups also did not differ ( $p=.363$ ). A one-tailed t test showed that the self-harmers had lower self worth ( $M = 3.52$   $SD = 1.06$ ) than the non-harmers ( $M = 4.00$   $SD = 0.64$ ),  $t(159)=2.39$ ,  $p=.009$ , but there was no difference in childhood trauma (both  $M = 2.59$ , self harm  $SD = 1.59$ , non-harmers  $SD = 1.48$ ). The means for all four groups are shown in Figure 1.

#### Depersonalization and Absorption

These ten items asked respondents to rate the frequency with which they experienced aspects of dissociative states, compared to their judgment of how often other people experienced them. This response format had been intended to avoid the strong skew resulting from just asking people how often they experienced such states. For the four absorption items, the central option (5 on the 0-10 scale) was indeed the modal response, but for the six depersonalization items, there was still a strong tendency for people to use zero – on all of these items zero was the modal response (30%-35% of responses to each item), followed by the midpoint of 5 (14% to 19% of responses). Overall, 46 people (11%) answered zero to all six depersonalization items.

Despite this, a Factor Analysis of all ten DES-C items used in this study (maximum likelihood, oblimin rotation) produced the same two-factor structure as in the original DES. The mean score from the six depersonalization items and the mean score from the four absorption items was computed. Excluding the 46 who only used zeroes on the depersonalization items, both means differed between the groups of self-harmers and non-harmers (on scales from 0 to 10, depersonalization: self-harm  $M = 3.87$   $SD = 2.00$ , non-harmers  $M = 2.81$   $SD = 1.73$ ,  $t(384)=5.34$ ,  $p<0.001$ ; Absorption self-harm  $M = 5.76$   $SD = 1.68$ , non-harmers  $M = 5.12$   $SD = 1.61$ ,  $t(384) = 3.61$ ,  $p<0.001$ ). Males and females did not differ on either measure, and age did not affect depersonalization, but the 18 to 21 year

old group reported higher absorption scores ( $M=5.56$ ,  $SD=1.62$ ) than the over 21 group ( $M=5.11$ ,  $SD=1.67$ ),  $t(384)=2.67$ ,  $p=.008$ .

Within the non-harming group, one-way ANOVA showed that depersonalization and absorption were also related to risk status (depersonalization  $F(2,260)=5.78$ ,  $p < .004$ ,  $\eta^2=.04$ ; absorption  $F(2,260)=3.06$ ,  $p = .049$ ,  $\eta^2=.02$ ). Post-hoc tests (Tukey's HSD) showed that for absorption, none of the three groups differed significantly (minimum  $p = .191$ , for low versus high-risk), but that for depersonalization, the low group scored marginally lower than the medium ( $p = .056$ ) and significantly lower than the high risk ( $p = .009$ ) groups, which did not differ ( $p = .398$ ). One tailed independent t tests showed that the high risk group did not differ to the self-harming group (depersonalization  $t(150)=0.78$ ,  $p = .437$ ; absorption  $t(150)=0.71$ ,  $p = .483$ ), but that the medium and low-risk groups scored significantly lower on both scales (depersonalization: medium  $t(201)=2.97$ ,  $p = .001$ , low-risk  $t(275)=6.04$ ,  $p<.001$ ; absorption: medium  $t(201)=1.71$ ,  $p = .045$ , low-risk  $t(275)=4.24$ ,  $p<.001$ ). The means for all four sub-groups are shown in Figure 2. Parallel analyses including all respondents produced the same pattern of results.

### Intrusive Thoughts

54% of respondents ( $N=233$ ) reported experiencing intrusive thoughts 'several times a day' and 10% ( $N=45$ ) 'every time I try to concentrate on something'. Only 7 respondents (1.6%) reported 'never' experiencing intrusive thoughts. 87% reported that their intrusive thoughts were either 'not at all', 'only momentarily' or 'somewhat' distracting, and 76% reported that they were distressing less than 30% of the time. Neither frequency, distraction or distress were contingent upon sex or age, within the whole sample or within the self-harm group.

Intrusive thoughts in people with experience of self-harm in this sample were more frequent (two tailed Chi-square = 11.2,  $df = 4$ ,  $p = .024$ ), more distracting (two tailed Chi-square = 10.2  $df = 4$ ,  $p = .037$ ) and more distressing (two tailed Chi-square = 25.4,  $df = 4$ ,  $p < .001$ ) than in people with no self-harming experience. Self-harmers also reported a greater frequency of negative thoughts about themselves (68% v 46%), harming themselves (15% v 1%), and unhappy memories (60% v 43%, two tailed Fisher Exact tests, all  $p \leq .001$ ). Over the whole sample, two tailed Fisher Exact test showed that women were more likely to report intrusive thoughts about food or drink (79%) than were men (52%,  $p < .001$ ), and men were more likely to report positive intrusive thoughts (28%) than were women (18%,  $p=.018$ ), and



thoughts about activities such as sports (52% v 41%,  $p=.042$ ). Within the self-harm group, the differences between women and men in thoughts about food or drink (85% v 52%,  $p<.001$ ), and positive thoughts (15% v 33%,  $p = .041$ ) were also found. In the whole sample, the 18 to 21 year olds were more likely than the older group to report intrusive thoughts about food or drink (78% v 65%,  $p=.004$ ), activities such as sport (53% v 35%,  $p<.001$ ), happy thoughts (54% v 42%,  $p=.016$ ), or ‘something else’ (55% v 43%,  $p=.016$ ), but none of these age differences were found in the self-harm group.

The high-risk group did not differ from the self-harm group in terms of overall IT frequency (Chi-square = 3.44,  $p=.487$ ), but two tailed Fisher Exact tests showed that more of them did report positive thoughts (43% v 20%,  $p = .010$ ), and none of the 30 reported thoughts about harming themselves, compared to 19 of the 131 self-harm group (15%,  $p = .025$ ). Compared to the low-risk and medium risk groups, the high risk group did not differ in terms of IT frequency, distraction or distress, but more reported unhappy memories (70% v 40%,  $p = .002$ ) and there was a trend towards more negative thoughts about themselves (63% v 44%,  $p = .052$ ), but more also reported positive thoughts about themselves (43% v 19%,  $p = .003$ ) and there was a trend towards more happy memories (67% v 47%,  $p = .053$ ).

The mean score from the seven Reactions items from the EBRIQ was associated with mean Depersonalization  $r = .38$ ,  $p < .001$ ; and mean Absorption  $r = .33$ ,  $p < .001$  (excluding the 46 respondents who had only used zeroes for the depersonalization items; including them did not change this pattern of results). People with experience of self-harm scored higher than those people with no experience of self-harm (on a scale from 0 to 4, self-harmers  $M = 1.91$ ,  $SD = 0.68$ ; non-harmers  $M = 1.59$ ,  $SD = 0.66$ ;  $t(430) = 4.59$ ,  $p < .001$ ). Within the non-harming group, a one-way ANOVA showed an association between risk-status and EBRIQ score ( $F(2,298)=6.31$ ,  $p=.002$ ,  $\eta^2=.04$ ), and post hoc Tukey’s HSD tests showed that the low-risk group scored significantly lower than the medium ( $p=.015$ ) and the high-risk ( $p=.018$ ) groups, but that these did not differ ( $p=.674$ ). One tailed independent t tests showed that the high risk group did not differ to the self-harming group ( $t(159)=.56$ ,  $p=.29$ ) but that the medium ( $t(218)=2.16$ ,  $p=.016$ ) and low-risk ( $t(311)=5.37$ ,  $p<.001$ ) did score significantly lower. EBRIQ scores did not differ between the sexes or the two age groups.

## Discussion

Rates of reported self-harm were particularly high in this study compared to previous literature. One reason for this may be the nature of the questionnaire itself, for not only was it confidential and non-intrusive (there was no-face to face element), but it was also billed as a survey investigating 'reactions to stress'. It may be that a survey of this nature attracts people who are more willing to talk about how they deal with stress, compared with those that are not keen to discuss it, possibly encouraging higher ratios of people who are willing to report self-harming experience. It is unsurprising that self-harm rates are somewhat higher than those reported in an acute setting such as accident and emergency. Further to this point, it is worth noting that studies find higher rates of self-harm in university samples than other populations (e.g. Gratz et al., 2002; Whitlock et al., 2006). Our question asking about ways of coping with stress (SH1) which was used as one criterion in categorising people as self-harmers did not explicitly ask people to report behaviors that they frequently engaged in, and so our self-harm group might include people who have only self-harmed once or twice as well as those with a more persistent history of self-harm. Evidence against this possibility is that nearly twice as many respondents reported current or previous experience of self-harm on items SH2 and SH6, compared to those identified by item SH1.

One anomalous result is that participants who self-harm were found to be significantly more likely to report letting off steam in a way that causes no harm. The examples of such behavior given in the questionnaire were shouting, screaming or hitting a pillow. It would therefore appear that those who self-harm (in this study) also externalize their negative feelings to some extent. While none of these examples directly cause harm, they are all energetic and physical ways of expressing negative affect, which result in strong bodily sensations. This unexpected result warrants further investigation, because acting out negative feelings in this way might be a precursor to engaging in more self-harmful acts, or it might be that it is more common in the self-harming group because they use it in place of a more harmful act.

Our data supports the anti-dissociation model of self-harm (Klonsky, 2007) in that our self-harming group scored higher on the DES-C depersonalization scale, but they also scored higher on the absorption scale, indicating that they are prone to get lost in their own thoughts. This is consistent with their also reporting a greater frequency of negative intrusive thoughts, which are more distressing and distracting, and which lead to greater emotional and

behavioral reactions. This suggests that while self-harm may be an attempt to avoid depersonalization, depersonalization may itself be a response to negative intrusive thoughts.

From the point of view of early detection of those at risk of engaging in self-harm, our most important finding is that people who reported engaging in three or more of the mildly self-harming and (specific) potentially maladaptive activities or in overtly letting off steam, are indistinguishable from the self-harming group in terms of scores on the DES-C depersonalization and absorption scales, on their reactions to intrusive thoughts (EBRIQ), and in their experience of childhood trauma. This group are not currently self-harming, but may be the people who could do so in the future.

The main way in which they currently differ from the self-harm group is that they have higher self worth and their intrusive thoughts are more often positive. Compared to the low-risk and medium-risk groups more of them report positive, happy thoughts and negative, unhappy intrusive thoughts, but the groups do not differ in thoughts about food and drink, activities, or 'something else'. The difference may be more self-related content in general, rather than negative content. Should the affective content of the non-harmers intrusive thoughts change toward the negative, then they would show the same profile as the self-harm group. It could be that their current normal self worth is protecting them against self-harming activity; although it could be that self worth drops once people begin self-harming.

It is also worth noting that four of the potentially maladaptive activities (excessive eating, under eating, smoking and general risk-taking behavior) were predictors of self-harm, alongside the mildly harmful compulsive behaviors. The other potentially maladaptive behaviors, although potentially being 'negative' coping strategies, were not associated with self-harm in this study. This is an important finding since these could in fact be activities that identify those more likely to engage in self-harm at times of heightened psychological distress. These factors are in many cases more outwardly visible, and could function as 'warning signs' to mental health professionals and others that are close to the individual concerned.

It is notable that while we were able to identify male self-harmers, very few of the non-harming males in our sample were classified as high risk. It is unlikely that the seven indicator activities were not sensitive for males, because they did distinguish between male self-harmers and non-harmers.

## Clinical implications

Risk factors identified in non-clinical groups can be useful in early identification of people who may be liable to self-harm, particularly in health, educational and criminal justice settings. Identification of possible background factors can also be used to inform and tailor interventions and treatment programmes to better suit people who self-harm but do not necessarily fit into diagnostic criteria for DSM diagnoses. Clearly, problems can be better dealt with if their causes are more plainly understood.

One example of this would be to help find more successful ways of dealing with intrusive thoughts. For example being less judgemental of the thoughts and oneself, and let them pass by rather than ruminate on them, as in Mindfulness-based therapies (Kabat-Zinn, 1994). Mindfulness may help people to deal with their intrusive thoughts (McClaren & Crowe, 2003; Marcks & Woods, 2005), so this may be useful in reducing individuals' self-harming activity. Dialectical Behavior Therapy (DBT, Linehan, 1993) uses mindfulness skills to reduce self-harming behavior in people with Borderline Personality Disorder (BPD), and thus it is feasible that a less intense therapy could be developed to target self-harm in other populations including individuals without DSM axis I (clinical syndromes) or II (personality and mental retardation) diagnoses. In relation to the anti-dissociation model, mindfulness may also be useful as an alternative grounding technique to self-harm as it focuses heavily on current experience.

## Methodological limitations and future research

This study collected data using purely quantitative, self-report methods. Some of the areas explored, in particular the experience of intrusive thoughts relating to self-harm may benefit from more in depth investigation, perhaps by way of less constrained methods such as semi-structured interviews.

The data collected on self-harm frequency could have been more comprehensive, in particular with regards to question SH1 exploring different coping behaviors in response to stress. Although the wording of the question ('when you feel stressed, low or anxious, which of the following behaviors do you engage in:') does imply these activities are participants' typical ways of coping rather than one off behaviors, there is no way of distinguishing people who have self-harmed in response to their stressors once, versus those who do so regularly. Now that we have shown a relationship between these behaviors and self-harm, future research could address frequency. This is important given that repetitive self harming

behavior highlights ongoing psychological distress, indicates greater risk of eventual suicide, and increases pressure on mental health services (Hawton et al., 1999).

We used the DES-C rather than the clinical version of the DES because we expected that the revised scales, which asked people to rate their own experiences of dissociation against others' experiences, would produce a more normal distribution, centered on the midpoint. While this was the case for the four Absorption items, which are more socially acceptable, the six Depersonalization items showed a response pattern that appeared to contain two types of response: a majority of people who did respond around the midpoint, but a large minority who strongly denied these experiences, using zero or one (indicating that they believed themselves to experience them much less often than most other people). These people could be not attending to the scale (which is unlikely, given their use of the midpoint for the Absorption items), or they could be reacting against the items, in an analogous way to the 'repressors' who deny their feelings of anxiety as a way of coping. This is worth further investigation.

It would be helpful to investigate how intrusive thoughts may play a role in other functional models of self-harm, apart from the anti-dissociation model. For example as a barrier to successful affect management (affect regulation model; Gratz, 2003), as suicidal intrusions in the anti-suicide model (Suyemoto, 1998) or as self-directed anger in the self-punishment model (Linehan, 1993).

Given the possibility of mindfulness as a coping method for unwanted intrusions, a future useful direction for research would be to examine trait mindfulness in people who self-harm compared with people who do not, to offer further support for the use of non-judgemental methods for coping with intrusive thoughts.

Understanding of the constructs described here could be further improved by extending the research to cover clinical groups, now that the groundwork with a non-clinical sample has been conducted. Since self-harm is particularly common in Borderline Personality Disorder (BPD) and Depression, both groups may warrant further investigation, particularly in the more novel area of intrusive thoughts in BPD.

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Table and Figure Captions

Table 1: Number and percentage of self-harmers and non-harmers reporting each response to stress (Item SH1). Self-harmers are defined as those reporting any of the six Self-harming activities, prior experience of or current self-harm. One-tailed Fisher's Exact Test reported where  $p < .05$ .

Figure 1: Scores on the childhood trauma (dashed line) scale rise with increasing number of risky or mild self-harming activities reported by the non-harming group, until the high risk group are indistinguishable from those who do report previous or current self-harm or who engage in self harming activities. The Self worth scale (solid line, empty circles) does not follow this pattern, with the high-risk individuals having higher self worth than those who self-harm. Bars indicate one standard error.

Figure 2: Scores on the DES-C depersonalization (dashed line) and absorption scales (solid line, empty circles) and on the EBRIQ (bold line, filled circles) rise with increasing number of risky or mild self-harming activities reported by the non-harming group, until the high risk group are indistinguishable from those who do report previous or current self-harm or who engage in self harming activities. Bars indicate one standard error.



