Self-mutilating behaviour of psychiatric inpatients

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Summary – In the present study two broad hypotheses about the origins of self-mutilation in psychiatric patients were evaluated. The first hypothesis states that self-mutilation originates from child abuse and experiences of neglect and is connected to dissociation in later life. The second hypothesis views self-mutilation as the consequence of impulse control problems. To test these two hypotheses, data concerning traumatic childhood experiences and dissociative symptoms (hypothesis 1), as well as data concerning aggressiveness, obsessive-compulsiveness and sensation seeking (hypothesis 2) were collected in a sample of 54 psychiatric inpatients. Twenty-four out of 54 patients (44%) reported having engaged in self-mutilation. Mean age of onset of this behaviour was 23 years. Self-report measures of self-mutilators were more in line with the first than with the second hypothesis. That is, patients who engaged in self-mutilation reported more traumatic childhood experiences and dissociative symptoms than did control patients. The two groups did not differ in terms of aggressiveness, obsessive-compulsiveness, and sensation seeking. In line with earlier studies, the current results indicate that self-mutilating behaviour is linked to a history of abuse and neglect.

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INTRODUCTION

Self-mutilation is defined as direct and deliberate harm to one’s body without conscious intent to die [26, 31]. Its reported prevalence in psychiatric inpatients varies considerably (i.e., from 5.8% to 77% [17, 32]), but it is clear that this behaviour poses a severe threat to the safety and well-being of psychiatric patients [10]. In particular, patients with borderline personality disorders run a high risk of injuring themselves [6, 25, 27]. In the general population, the lifetime prevalence of self-injury is estimated to be 0.75% [11].

Many theories have been invoked to account for self-mutilating behaviour. For example, self-mutilation has been portrayed as a strategy to reduce tension or distress [1, 8, 10, 12, 25, 26], as an expression of anxiety, anger, shame, guilt [1, 26], a form of self-punishment [1, 12, 25], or manipulative behaviour [10, 12, 14]. Alternatively, some authors have linked self-mutilation with difficulties in impulse control [10, 26]. Self-mutilation is also viewed as a way to control traumatic childhood experiences [1, 10, 12] or as an attempt to stop feelings of dissociation, depersonalisation [1, 6, 10, 12, 32] or alexithymia [32]. This lack of agreement about the aetiology of self-mutilation is emphasised by Shearer [25] who concluded, after studying 62 cases of female borderline patients, that “there was considerable diversity in the practice of self-injury on dimensions such as impulsivity vs. premeditation, privacy vs. exhibitionism, and experience of pain and relief” (p. 524). However, self-mutilating patients in that study more often reported an abusive history and displayed more dissociative symptoms than patients who did not engage in self-injury. Note that an association between self-reported traumatic youth experiences and auto-aggressive behaviour has been re-
ported in a number of other studies (e.g., [8, 17, 19, 32]), although Brodsky et al. [1] found that self-mutilation in female borderline patients was connected to dissociation rather than to sexual and/or physical abuse. However, a limitation of these studies is that information about abuse experiences was collected in rather crude way (e.g., as a dichotomous absence-presence variable). Consequently, the reliability and validity of the critical measures used in these studies are unknown. To further investigate the relationship between self-mutilation and traumatic youth experiences, the present study relied on the Childhood Trauma Questionnaire (CTQ) developed by Bernstein and associates [2, 3, 4]. The CTQ is a validated instrument that records information about aversive childhood experiences in five separate domains: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect [3].

The current study sought to evaluate two broad hypotheses about the origins of self-mutilating behaviour: 1) self-mutilation is linked to traumatic childhood experiences and dissociative symptoms; and 2) self-mutilation should be understood as a part of a more general impulse control disorder. If true, these problems should also be reflected in high levels of hostility, sensation seeking, and obsessive compulsiveness. Both hypotheses are, of course, not mutually exclusive. That is to say, it is conceivable that, for example, traumatic experiences can lead to problems both in impulse control and self-mutilation.

METHOD

Patients

Patients were recruited from inpatient facilities at Psychiatric Hospital Welterhof, Heerlen, The Netherlands. More specifically, they were recruited from five short-term treatment wards, three of which were closed wards. Patients who were admitted for a period longer than 4 weeks and whose main therapist did not object to participation were invited to participate in the study. In total, 55 patients gave written informed consent. One interview had to be interrupted due to the patient’s lack of concentration. The data of this patient were excluded from the analyses, leaving 54 patients in the final sample.

Materials and methods

Patients were asked whether they had ever engaged in self-mutilation. Self-mutilation was explained to them as dangerous behaviour leading to direct and deliberate harm of the body without the intent to die. Cutting of the skin and banging of the head were given as examples of self-mutilating behaviour.

Patients who reported self-mutilating behaviour were asked to provide details about the type of self-injury, the frequency, and the age of onset of this behaviour. Severity of self-mutilation was assessed using 100 mm Visual Analogue Scales (VASs) that ranged from 0 = not severe at all to 100 = extremely severe. More specifically, patients were invited to describe their most serious self-mutilating incident. The patient as well as two researchers (H.N. and M.D.) rated the severity of this most serious incident on the VAS measure. Mean scores of the three VASs were regarded as an estimate of the severity of the self-mutilating behaviour of the patient.

Following the interview, patients completed the CTQ [2-4], the Dissociative Experiences Scale (DES) [5], the Buss-Durkee Hostility Inventory-Dutch (BDHI-D) [18], the Maudsley Obsessional-Compulsive Inventory (MOCI) [24], and the Dutch Sensation Seeking Scale (SSS) [13]. If necessary, the questions were read out to the patient.

The CTQ was originally designed as a 70-item self-report inventory that asks about traumatic experiences that took place before the age of 18. A sample item would be: “When I was growing up someone in my family hit me or beat me”. The answers are recorded on 5-point Likert scales ranging from never true to very often true. A revised 53-item version with five subscales measuring emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect was developed [2, 3]. In the current study, CTQ-scores were calculated according to this 53-item version.

The DES [5] is a widely used self-report instrument for measuring dissociative symptoms. It consists of 28 items describing dissociative experiences such as feelings of depersonalisation and derealisation, and disturbances in identity, memory, awareness, and cognition. Respondents are asked to indicate on 100 mm VASs the degree to which the experiences described in the items apply to them.

The Dutch adaptation of the BDHI [18] consists of 40 items measuring aggressive behaviour to which the respondent has to answer either true or untrue. The
BDHI-D has two major subscales: overt aggression, determining the tendency to express verbal and physical aggression, and covert aggression, measuring hostility, irritability, suspicion, and anger [18]. Examples of BDHI-D-items are: ‘If somebody hits me, I let him have it’ (overt aggression) and ‘I am irritated a great deal more than people are aware of’ (covert aggression).

The MOCI [24] is a well-established 30-item true-false questionnaire to measure obsessive-compulsive symptoms. It comprises four subscales, namely checking, cleaning, slowness, and doubting-conscientiousness.

Finally, patients completed a Dutch version of the Sensation Seeking Scale (SSS). This scale was developed by Feij and van Zuilen [13] on the basis of the SSS introduced by Zuckerman [33]. It is designed to measure an individual’s need for stimulation and it contains four subscales: thrill and adventure seeking, experience seeking, boredom susceptibility, and disinhibition.

Analyses

Differences in CTQ, DES, BDHI-D, MOCI, and SSS scores between patients with and without a history of self-injurious behaviour were evaluated with \( t \)-tests.

A separate analysis was carried out for item 19 of the DES. This item evaluates an individual’s ability to ignore pain at certain times and may be relevant for understanding why patients are capable of harming themselves in the systematic fashion that is sometimes observed on psychiatric wards. Further, two specific items of the SSS were analysed in more detail. Namely, the daily number of cigarettes smoked and the hours of sleep needed. In addition, Pearson product-moment correlations between VAS severity and the five questionnaire measures were computed. For all analyses, alpha was set at 0.01. \( P \)-values between 0.01 and 0.05 were regarded as marginally significant.

RESULTS

Patient characteristics

Of the 54 interviewed patients, 28 were men (52%) and 26 were women (48%). The mean age was 37.5 years (SD = 12.4). Table I shows the primary psychiatric diagnoses of the participants. The most common diagnoses were: psychotic disorders (41%), personality disorders (30%), and affective disorders (26%).

Of the 54 patients, 24 (i.e., 44%) reported a history of self-mutilation. Neither sex \( \chi^2 (1) < 1.0 \), nor age were found to be related to self-mutilation \( t (52) = 1.66, P = 0.10, \) two-tailed. As expected, self-mutilating patients were more often diagnosed as suffering from borderline personality disorder \( \chi^2 (1) = 7.3, P < 0.01 \).

Self-mutilating behaviour

For the 24 self-mutilating patients, the reported lifetime frequency of self-mutilating incidents varied from as low as one episode to as high as 1,000 episodes. The median number of self-mutilating acts was eight. On average, self-mutilating behaviour had begun at the age of 23 (SD = 10.7). The median age of onset was 21 years. No significant differences in age of onset were found between psychotic patients (mean age of onset = 25.0, median = 23.0, SD = 10.0) and personality disordered patients (mean age of onset = 24.3 years, median = 21.0, SD = 10.5 years).

The most commonly reported type of self-mutilation was cutting or scratching of the skin. Nineteen of the 24 self-mutilators (79%) referred to this particular
Seven patients reported having burnt their skin at one or more points in time, and five reported having banged their head against a wall. Fourteen of the 24 self-mutilators (58%) indicated that they had received medical treatment for the consequences of their self-injurious behaviour. The mean severity of the self-mutilating behaviour in terms of averaged VAS scores was $47.7$ (SD = $24.6$). It is noteworthy that a strong and highly significant correlation was found between the VAS severity ratings of the two researchers ($r = 0.87; P < 0.01$). The associations between the patients’ VAS severity scores and those of the two researchers were moderate, but still marginally significant ($r = 0.46, P < 0.05$ and $r = 0.45, P < 0.05$, respectively).

### Correlates of self-mutilation

Table II shows trauma-related information, i.e., CTQ and DES scores of self-mutilators and control patients. Table III shows the results of the self-report scales measuring impulse control aspects (i.e., hostility,
obsessive-compulsiveness, and sensation seeking). Due to their psychopathology, some patients were unable to complete all questionnaires. Consequently, $t$-test comparisons have varying degrees of freedom.

The main findings can be summarised as follows. Firstly, self-mutilating patients reported more traumatic childhood experiences than patients who did not engage in self-mutilation. This significant effect was carried mainly by the CTQ subscales emotional abuse and physical abuse, which were reliably higher for self-mutilating patients. Trends in the same direction were found for the other CTQ subscales (i.e., sexual abuse, emotional neglect, and physical neglect). Exclusion of borderline patients from the analysis did not change this pattern of findings. That is to say, the CTQ scores were significantly raised in the group of (non-borderline) self-mutilating patients as compared to (non-borderline) control patients [$t(34) = 2.6, P < 0.01$].

Secondly, self-mutilators exhibited higher dissociation scores than the control patients. Again, exclusion of borderline disordered patients did not yield a different result; (non-borderline) self-mutilators reported more dissociative symptoms than (non-borderline) control patients [$t(35) = 2.5, P < 0.01$]. Separate analysis of item 19 of the DES revealed a marginally significant trend that self-mutilators were better at ignoring pain than the non-mutilators.

Thirdly, contrary to expectation, neither the total scores, nor the subscale scores of the BDHI-D, the MOCI, or the SSS were higher in self-mutilating patients than in control patients. Differences between self-mutilators and non-mutilators with regard to these measures remained non-significant when borderline patients were excluded from the comparisons. As for the SSS smoking item, self-mutilators reported smoking a mean of 24 cigarettes per day, whereas the mean for the control group was 15 cigarettes, a difference that approached significance ($P = 0.014$).

Fourthly, only the CTQ total score was found to be marginally correlated with the severity of self-mutilation ($r = 0.38, P < 0.05$) as derived from the VAS scores given by the patient and two researchers. No further significant correlations between the severity and the other scale scores were found.

Finally, Table IV shows the correlations between total CTQ, DES, BDHI-D, MOCI, and SSS scores. Interestingly, CTQ and DES scores were strongly correlated ($r = 0.72, P < 0.01$).

**DISCUSSION**

Of the 54 psychiatric inpatients interviewed, 24 (44%) reported self-mutilation. Due to a number of limitations of the present study, this percentage should be interpreted with caution. Firstly, the small sample size of the present study ($n = 54$) does not permit accurate estimates of the prevalence of self-mutilation. Secondly, the current study relied on self-reports measures. Reported incidents were not checked against patient files. Further, the high prevalence of self-mutilating behaviour may be related to the recruitment procedure of the present study. To begin with, for therapeutic reasons, patients who were admitted for less than 4 weeks were not included. It was anticipated that these patients would find it difficult to talk about self-mutilating behaviour and childhood trauma in the acute phase of their illness. Thus, as the duration of hospitalisation was used as an inclusion criterion, the prevalence rate found in the present study may represent an overestimation. There is, indeed, evidence to show that self-mutilating patients may require longer hospitalisation than non-mutilating patients (see [9]).

Further, the therapist had to approve the participation

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>DES (dissociation)</th>
<th>BDHI-D (aggressiveness)</th>
<th>MOCI (obsessive-compulsiveness)</th>
<th>SSS (sensation seeking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTQ score (childhood trauma)</td>
<td>0.72**</td>
<td>0.33*</td>
<td>0.21</td>
<td>0.16</td>
</tr>
<tr>
<td>DES (dissociation)</td>
<td>–</td>
<td>0.33*</td>
<td>0.18</td>
<td>0.14</td>
</tr>
<tr>
<td>BDHI-D (aggressiveness)</td>
<td>–</td>
<td>–</td>
<td>0.30*</td>
<td>0.23</td>
</tr>
<tr>
<td>MOCI (obsessive-compulsiveness)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–0.21</td>
</tr>
</tbody>
</table>

** $P < 0.01$ (two-tailed); * $0.01 < P < 0.05$ (two-tailed).
of the patient in the current study. Although objection was only made in exceptional cases, this procedure may have biased the results.

The main purpose of the current study was to examine two broad hypotheses about the origins of self-mutilation. According to the first hypothesis, self-mutilation originates from an abusive and neglectful childhood and is connected to dissociative tendencies (e.g., [32]). The second hypothesis conceptualises self-mutilation as an impulse control problem (e.g., [26]). The present findings support the first rather than the second hypothesis. That is, self-mutilators differed with regard to traumatic experiences and dissociative symptoms, but not with regard to indices of impulse control. In literature, dissociation is often portrayed as a psychological link between trauma and self-mutilation. By this view, dissociation is thought to be a mechanism for handling extreme traumatic experiences [7]. Self-mutilation, in turn, is regarded as a reaction to severe dissociative states (see [6, 10, 32]). In the present study, self-mutilating patients did, indeed, report (marginally) more dissociative complaints and the severity of traumatic experiences in childhood was correlated with dissociative tendencies (Pearson’s r = 0.72). Alternatively, dissociation has been found to be linked to fantasy proneness [21] which could lead to a tendency to confuse real autobiographical memories with those that derive from fantasies [22]. For these reasons, the question arises whether: “(...) high DES individuals display a positive response bias on retrospective self-report indices of trauma” [22]. Note also that an interpretation of self-mutilation in terms of childhood trauma and dissociation fails to explain why self-mutilation begins at a relatively late age.

Interestingly, the present findings are also consistent with the notion that dissociation is the result rather than the antecedent of self-mutilation (e.g., [32]). The release of beta-endorphin after self-injury might underlie the connection between dissociation and self-mutilation [16, 31]. Beta-endorphin is known to decrease awareness and pain [16]. In line with this, the current study found that self-mutilators tend to report a higher threshold for pain at certain moments than do the control patients. This may explain why some patients are able to injure themselves in such an extreme manner as is sometimes observed. Perhaps then, in these cases, self-mutilating behaviour is reinforced by the positive (anaesthetic) effects of endogenous opiates and self-mutilators may be more susceptible to these effects [31].

There is increasing evidence to support the theory that lowered serotonergic activity is involved in suicidality and self-mutilation [20, 30, 31]. Interestingly, Southwick et al. [28] recently demonstrated chronic alterations in the serotonergic system in a subgroup of traumatised combat soldiers. Clearly, research concerned with the association between childhood trauma and adult self-mutilation should examine this issue in more detail.

To summarise, although the accuracy of retrospective self-reports of traumatic events has not been firmly established yet, the findings of the present study do suggest that self-mutilation in psychiatric patients is linked to negative childhood experiences. Therefore, primary prevention of this harmful and dangerous behaviour should start with intervention in abusive families. If self-mutilation in psychiatric hospitals is to be prevented, it is crucial that the psychological and biological mechanisms underlying the (delayed) association between childhood trauma and self-mutilation in later life are better understood.

Jones and Daniels [15] presented a model in which physical, psychological, and social isolation in early developmental phases are important antecedents of self-mutilation in adult animals and humans. Confinement and isolation in later life can serve as triggers for self-destructive acts, especially in individuals with a history of deprivation [15, 31]. On the basis of the literature, Suyemoto [29] concludes that: “isolation from others almost always precedes the actual act of self-mutilation” (p. 534). This observation jibes well with findings from our previous study on the differences between auto-aggressive behaviour and outwardly directed aggression [23]. Paradoxically, in psychiatric hospitals, seclusion and physical restraints are often used as measures to control severe self-mutilation. These methods may give temporary symptomatic relief, but do not result in lasting behavioural changes. Clearly, there is an urgent need for studies on how patients can be taught to cope with negative childhood experiences without engaging in self-destructive behaviour.

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