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Kertas Ulasan/ *Review Article*

Reviewing Self-Injury: Implications for the Study of Self-Injury and Suicidal Behaviour in Malaysia

(Ulasan Tindakan Mencederakan Diri Sendiri: Implikasinya ke Atas Kajian Mencederakan Diri Sendiri dan Tingkah Laku Membunuh Diri di Malaysia)

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ABSTRACT

Self-injury is a significant predictor of future self-harm and suicide, and is associated with significant psychological morbidity. However, despite an apparent increase in prevalence, very little research on this behaviour has been conducted within Malaysia. This paper reviews the definitional issues pertinent to the study of self-injury including the need to adopt a consistent nomenclature for the behaviour, separate self-injury which occurs with and without suicidal intent, and to address role of culture in defining self-injurious behaviour. A review and critique of research exploring the prevalence, function, aetiology, and correlates of self-injury across both clinical and community samples is provided. Finally, in light of the current international knowledge regarding self-injurious behaviour, recommendations to guide future research in Malaysia are proposed.

Key words: Self-injurious behaviour, review, Malaysia

ABSTRAK

Mencederakan diri adalah penunjuk yang signifikan bagi tindakan membunuh diri pada masa yang akan datang, dan berkaitan dengan morbiditi psikologikal. Walaupun terdapat peningkatan prevalens, kajian ke atas tingkah laku ini sangat kekurangan di Malaysia. Kertas ini mengulas beberapa isu definisi berkaitan dengan kajian mencederakan diri termasuk keperluan untuk menceduk tatanama yang piawai untuk tingkah laku ini, tindakan mencederakan diri yang berasingan yang berlaku bersama dan tidak bersama dengan niat membunuh diri, dan juga untuk menengahkan peranan budaya dalam mendefinisikan tingkah laku mencederakan diri. Ulasan dan kritikan ke atas kajian dari segi prevalens, fungsi, etiologi dan

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faktor-faktor yang berkaitan dengan tindakan mencederakan diri di kalangan sampel klinikal dan komuniti turut dibincangkan. Akhir sekali, dengan mengambil kira pengetahuan global berkaitan tingkah laku mencederakan diri, saranan bagi kajian di Malaysia juga dikemukakan.

Kata kunci: Tingkah laku mencederakan diri, ulasan, Malaysia

INTRODUCTION

Self-injury is a serious, yet poorly understood problem. Formerly thought to occur only in the context of severe mental disorders, reports that increasing numbers of adolescents and young adults are self-injuring (Fortune & Hawton; 2005; Hasking et al. 2008; Hawton et al. 1997; Klonsky et al. 2003) have increased the profile of self-injury across academic, clinical and mainstream literature. However, to date, research into the aetiology, function and characteristics of self-injury has suffered from definitional and methodological inconsistency which has rendered comparisons between studies difficult. This confusion has been compounded by the failure of many studies to delineate between self-injury which occurs with, and without suicidal intent. Despite definitional and methodological difficulties, self-injury is believed to be common, associated with significant psychiatric morbidity and is a recognised risk-factor for future self-harm and completed suicide (Boyce et al. 2003; Nock et al. 2006; Owens et al. 2002; Owens & House 1994).

The majority of research concerning self-injury originates in the United States, United Kingdom or Europe, with very little research conducted in Asian countries. This is concerning for three reasons. First, self-injury is a recognised predictor of later suicide (Connor et al. 2003). As suicide rates throughout Asia are higher than in Western countries (Mishara 2007) it might also be true that rates of self-injury are higher, and that examination of self-injury may shed light on ways to prevent more severe self-harm and later suicide. Secondly, little is known about cultural differences in self-injury. Some evidence exists to suggest that risk factors for suicide differ between developed and developing countries (Fathelrahman et al. 2005); the same may be true of non-fatal forms of self-injury. Examination of the nature and extent of self-injury across a range of cultures will allow a deeper understanding of how socio-cultural factors are related to such behaviour. Given the diverse cultural and ethnic groups residing in Malaysia, research in this geographic area would prove fruitful in exploring such relationships. Third, anecdotal reports suggest that self-injury is increasing in Malaysia, particularly among young girls. Effective prevention and early intervention initiatives demand local data to inform culturally appropriate practices. This paper summarises the international literature regarding self-injury with a view to providing a background for research into self-injury and suicidal behaviour in Malaysia. Following a review of definitional issues,

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functions and correlates of self-injury, suggestions for future research in this area will be proposed.

WHAT IS SELF-INJURY?

TERMINOLOGY

In the past, equivocal definitions and variability in terminology have hampered systematic investigation and understanding of self-injury (Feldman 1988). Self-injury has been defined broadly to include any type of self-harmful behaviour, with accompanying terms such as; auto-aggression, deliberate self-harm (Ayton et al. 2003; Boyce et al. 2003), self-mutilation or self-inflicted violence, and has been defined more specifically by terms such as 'delicate self-cutting' (Pao 1969). The terms 'self-mutilation' (Favazza 1996; Favazza & Conterio 1988; Favazza & Simeon 1995; Feldman 1988, Ross & Heath 2002), 'self-wounding' (Tantum & Whittaker 1992) or 'self-inflicted violence' though accurate descriptors for mutilative acts towards oneself, are emotionally evocative and may elicit negative connotations in a patient, clinician or researcher, and as such are unsuitable labels for self-injurious behaviour (Favazza 1996). Additionally, 'self-cutting' or 'self-poisoning,' fail to encompass the full range of self-injurious behaviours, and are overly specific.

The terms 'deliberate self-harm' and 'self-injury' are currently two of the favoured terms used to describe these behaviours Yet, even with some consensus on the appropriate terminology, which behaviours might be considered self-harm stimulates considerable debate. For example, self-poisoning does not result in the physical stigmata associated with visible modes of self-injury (such as self-cutting), and is typically not an activity that permits a precise prediction of subsequent harm (Favazza 1996; Favazza & Conterio 1988; Jacobs 2000). Consequently, some authors have argued for the exclusion of self-poisoning from formal definitions of self-injury, thereby restricting self-injury to acts which produce predictable, and outwardly observable physical harm only. Others recognise the prevalence of self-poisoning as a crucial issue and include intentional poisoning in the definition of self-harm.

Within the Malaysian context the term self-injury may arguably be broadened to include self-poisoning. Death by poisoning is disproportionately common in Asian countries, including Malaysia, particularly in rural areas where pesticides are readily accessible (Mishara 2007). The Cameron Highlands has previously been noted to have one of the highest rates of pesticide use in Asia (Jeyaratnam et al. 1987). Early studies in the Cameron Highlands reported over 90% of suicides and 66% of self-harm resulted from ingestion of pesticides (Maniam 1988), while in Sarawak ingestion of paracetamol is common among young girls (Chee et al. 2001). However, much of our knowledge regarding poisoning in Malaysia comes from studies of suicide, or audits of hospital

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records. As such, suicidal intent is not always clear. In determining whether deliberate poisoning might be conceptualised as self-injury it is necessary to explore the intentions of the individual ingesting the poison.

SELF-INJURY WITH AND WITHOUT SUICIDAL INTENT

Terms such as 'parasuicide' (Brown et al. 2002; Crowell et al. 2005) and 'non-fatal suicidal behaviour' indicate that self-injury and suicide attempts are somewhat similar, whereas 'non-suicidal self-harm' suggests that suicide and self-injury are distinct. That differences may exist between suicidal and non-suicidal self-injury was first suggested by Menninger (1938), when he described the committal of self-injury as a form of 'anti-suicide.' Likewise, others argue that clinically significant self-injury occurs in the absence of suicidal intent and functions as a coping strategy (Favazza 1989; Favazza 1996; Favazza & Rosenthal 1990; Favazza & Rosenthal 1993), is a form of catharsis of internal hurt and pain (Brophy 2006) and alleviates tension (Brophy 2006; Feldman 1988; Ross & Heath 2003). These suggestions rest on the theory that individuals who attempt suicide endeavour to escape or end their distress, whereas others self-injure in an attempt to manage these feelings (Bowen & John 2001; Favazza 1998; Mueilenkamp & Gutierrez 2004).

Whether the distinction between self-injury with and without suicidal intent is important has been difficult to ascertain due to the scarcity of research which has separated these groups or compared them directly. In a large study of the nature and prevalence of self-injury among 15-and 16-year-olds in England, Hawton et al. (2006) found that the most often cited reason for self-cutting was to obtain relief from a 'terrible state of mind', whereas tension release (Nixon et al. 2002), escape and 'to die' (Boergers et al.1998) have also been identified as reasons for self-injury. Similarly, other studies have found that, among adolescents, the purpose of suicide attempts is to obtain relief or to escape psychological distress (Kienhorst et al.1995). Although these findings imply that suicide attempts and self-injury occur for similar reasons, it is noteworthy that Boergers et al.'s (1998) findings were based on hospitalised self-poisoners; a sub-sample of individuals who others (Favazza 1996; Favazza & Rosenthal 1993) argue should be excluded from the category of self-injurers, and who have been shown to differ significantly in their reasons for self-injury (Rodham et al. 2004).

Other researchers have found that non-suicidal self-injurers (including those who self-injured using medication) are relatively less hopeless, less often depressed, and report greater levels of substance abuse and externalising problems compared with suicidal self-injurers (Groholt et al. 2000). Evidence indicates that even in a sample of individuals hospitalised for serious, almost lethal, self-injury only two-thirds report thoughts of suicide (Douglas et al. 2004) and only 6% of high-school students who have engaged in self-injury

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have done so with the intention to die (Patton et al. 1997). These findings suggest that intent to die and lethality of harm are not necessarily synonymous, and, that suicidal ideation remains prevalent in only a relatively small number of community-based (as opposed to hospitalised) self-injurers.

Additionally, Boergers et al. (1998) examined the social, psychological and attitudinal attributes of American adolescents presenting to hospital for treatment following self-destructive behaviour assumed to be a suicide attempt. Upon exploration of adolescents' reasons for self-harm, 56% of the sample indicated a wish to die as a motivation for their self-injury, with 28% of this group citing the intent to die as their primary motivation. Compared with adolescents who had never expressed a wish to die, the suicidal group exhibited greater levels of depression, hopelessness, anger and socially prescribed perfectionism (Boergers et al. 1998).

Mueilenkamp and Gutierrez (2004), attempted to clarify the attitudinal and motivational differences between 22 suicide attempters and 62 high-school self-injurers, and found measures of depression and suicidal ideation did not differ between these groups. The only variable differentiating suicide attempters from those who self-injured was a more negative attitude towards life. Supporting this finding, non-suicidal self-injuring adolescents can be overwhelmed by acute problems and have unstable emotions and motives, but see the future with optimism (Groholt et al. 2000). On the other hand, suicidal self-injuring adolescents are noted to be depressed and lonely, and have less hope for the future (Groholt et al. 2000). This suggests both the self-injurers and suicide attempters in Mueilenkamp and Gutierrez's (2004) study suffered from similarly high levels of distress, but does not mean that an equally negative outlook on life accompanies these similarities.

Collectively, although these equivocal findings suggest that suicidal intent and outlook on life may differ across individuals who self-injure, it is unclear whether this precedes other qualitative differences between suicidal and non-suicidal individuals. Methodological and definitional problems preclude firm conclusion as to whether suicidal and non-suicidal self-injury differs, and, for the purposes of clarity and specificity, research studies must delineate between these groups until it can be demonstrated that they are qualitatively equivalent.

CULTURE AND PATHOLOGY

A further point of confusion in past definitions of self-injury relates to the impact of culture in defining what is and what is not deemed to be self-injurious behaviour. As Walsh and Rosen (1988) and Favazza and Simeon (1995) note, pathological self-injury is defined by actions which are deemed socially unacceptable. By this token, in Western society practices such as tattooing are accepted, whereas cutting, burning or carving of the skin are deemed culturally deviant and pathological (Favazza 1998). On the other hand, in many African

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nations, ritual cutting is not seen as self-injury when it accompanies religious ceremonies or other cultural practices.

Similarly, religious differences exist in the degree to which suicide and suicidal behaviour (including self-injury) are accepted or prohibited. This is particularly pertinent when examining self-injury in Malaysia, where three large ethnic groups (Malay, Chinese and Indian) and three major religions (Islam, Hindi, Buddhism) are represented. Islamic teachings and the Koran expressly forbid suicide, an explanation often offered for the relatively low rates of suicide and self-harm seen in Muslim populations. While Buddhist teachings actively discourage harming living creatures, suicide might be viewed as a noble way to die in Chinese cultures. Conversely Indian culture tolerates self harm and suicide is not expressly forbidden (Fathelrahman et al. 2006). Religious or cultural views may similarly result in suicidal behaviour and self-injury being stigmatised. As such, individuals may be reluctant to disclose self-injury, leading to an underestimate of prevalence rates. Anonymous epidemiological studies in a country such as Malaysia would offer an ideal opportunity to explore whether self-injury is occurring as rarely as it is reported to be, in Muslim (as well as other) populations.

Given the potential cultural and religious differences in how self-injury is viewed, it is helpful that a system of classifying various sub-types of self-injury was developed by Favazza and Rosenthal (1990) and modified by Favazza and Simeon (1995). Now widely accepted (Favazza 1996), this system separates culturally deviant self-injury into one of three domains: Stereotypic self-mutilation is self-injury which occurs in a repetitive and rhythmic fashion, lacks expressive or symbolic purpose and is evidenced by the body-rocking, or head-banging behaviours seen in individuals with organic impairment (Favazza 1996). Major self-mutilation (self-castration or eye enucleation) is a serious and life-threatening form of self-injury which may occur in the context of psychotic episodes. Finally, moderate/superficial self-mutilation involves low-lethality skin-cutting and burning which may co-occur with a diagnosable condition such as Depression or Borderline Personality Disorder, or is evident in the absence of formal mental health pathology.

The focus of the present review will be to examine moderate/superficial self-mutilation. In light of the definitional and conceptual issues relating to suicidal behaviours, this behaviour will hereafter be labelled 'self-injury.'

PREVALENCE OF SELF-INJURY

Estimates of the prevalence of self-injury vary widely depending on the inclusivity of its definition and the characteristics of the surveyed population. Despite such variability, suicidal thoughts and behaviours are thought to be relatively common among young people in the general population (Evans et al. 2005), and admissions to hospital due to self-injury are reportedly increasing

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(O' Loughlin & Sherwood 2005). Studies investigating the nature and extent of self-injury typically fall into one of four categories: examinations of prevalence among community-based adolescents and young adults, examinations of individuals presenting for hospital treatment (for a suicide attempt), examinations of self-injury in psychiatric inpatient settings (in patients with borderline personality disorder) and, finally, examinations of self-injury in other (forensic) populations.

COMMUNITY SAMPLES

As noted by several authors, self-injury commences in early adolescence (Ayton et al. 2003), with most starting to self-injure between 13 and 15 years of age inclusively (Mueilenkamp & Gutierrez 2004). Yet, the majority of young people who self-injure do not present for medical treatment (Murray et al. 2005), and thus are not present in clinical samples. As such, it has been suggested that prevalence estimates derived from clinical samples are likely to underestimate the true extent of self-injury among young people.

Despite this knowledge, few studies have examined the behaviour in samples of young adolescents in the community (Favazza 1998; Favazza & Rosenthal 1993; Pattison & Kahan 1983; Ross & Heath 2002), and fewer still have sought data from 12 to19-year-olds to establish correlates associated with commencing and continuing self-injury. A review of 128 studies investigating 'suicidal phenomena' involving collective data from 513,188 twelve to 20-year-olds (with heterogeneity in definitions of self-injury and prevalence estimates), found average lifetime rates of self-injury in community-based adolescents to be 13.2% (Evans et al. 2005). In accordance with these findings, Hawton et al. (2002) undertook a cross-sectional evaluation of 6,020 fifteen and 16-year-olds and also found that 13.2% of respondents had injured themselves in the past, with 6.9% of the sample doing so within the last year. The apparent concordance between Evans et al (2005) and Hawton et al. (2002)'s data however, should be viewed in light of the fact that Hawton et al. (2002)'s sample comprised a substantial number of suicidal self-injurers (45%) and included self-poisoning and substance abuse in their conceptualisation of self-injury.

Similarly, De Leo and Heller (2004) also failed to discriminate between suicidal and non-suicidal self-injury and included self-poisoning in their definition of the behaviour when examining self-injury in Australia. Lifetime prevalence for self-injury was observed to be 12.4% in 3,757 fifteen and 16-year-olds, with 6.2% of adolescents engaging in self-injury in the last 12 months. Likewise, Ross and Heath (2002) reported that 13.9% of 440 high-school students had engaged in self-injury, as confirmed by a screening questionnaire and semi-structured interview. Mueilenkamp and Gutierrez (2004) found that 62 of 390 high-school students (or 15.9%) in the US, reported that they had 'harmed themselves'. However, the authors' broad definition of self-injury meant that an

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extremely wide range of behaviours (rom self-cutting to overdosing) was reported.

Methodological variability between these studies deserves comment. Ross and Heath (2002) described their research as an investigation into 'how participant's deal with stress'. Although admittedly a non-confrontational segue into assessing self-injury, respondents may have been disinclined to report self-injury occurring outside of a perceived coping attempt. Compared with other studies, Mueilenkamp and Gutierrez (2004)'s inclusive definition of self-injury may, in part, have resulted in their inflated prevalence rate, or, as noted by the authors, may be a result of the characteristics of their sample. The manner in which data regarding self-injury is collected has a significant impact on prevalence rates. Much higher rates of self-injury are reported when people are prompted to recall specific forms of self-injury (cutting, burning, head-banging, wound interference etc), than when simply asked if they have ever hurt themselves on purpose. Among young adults and university students, rates between 38% and 47% have been reported when using such methodology (Gratz & Chapman 2007; Hasking et al. 2008; Paivio & McCulloch 2004; Williams & Hasking 2009). Similarly high rates have been noted in a sample of adolescents when prompted with similar questions (Hasking et al. 2009).

Whether these high rates are an artefact of the methodology used, or an indication of an increase in this behaviour is unclear. Additionally, many studies reporting such high rates of self-injury fail to enquire as to the motives for self-injury. As such, socially sanctioned forms of self-injury (self-injury in response to a dare) may have been reported by participants, artificially inflating the prevalence estimates. However, even acknowledging the difficulties in obtaining accurate prevalence rates, it is clear that self-injury is a significant issue among young people in the community, and that further research is required in order to determine the reasons for this behaviour and the most effective methods of prevention and intervention.

CLINICAL SAMPLES

As with many community-based studies, research within clinical populations has typically not differentiated between suicidal and non-suicidal self-injury. The inclusion of self-poisoning in definitions of self-injury has meant that many studies have reported this as the most prevalent form of harm (Douglas et al. 2004), especially among females (Ayton et al. 2003). Due to definitional variability, and the comparisons of characteristically different samples, estimates of self-injury in clinical populations range between 4.3 and 61% (Ayton et al. 2003; Nixon et al. 2002; Suyemoto 1998).

In a small sample of 12-18 year olds admitted to hospital or participating in a partial hospitalisation programme, 42 of 130 screened patients engaged in repetitive self-injury with an average age of onset of 12.7 years old (Nixon et al.

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2002). These data indicate that in clinically referred adolescents, self-injury (as defined in the present paper) is common, is conducted repetitively and commences at the outset of adolescence. Over 78% of Nixon et al. (2002)'s sample reported daily impulses to self-injure, which is consistent with findings by Crawford and Wessely(2007) and Hawton and James (2005) that past self-injury is a sound predictor of future self-injurious behaviour.

In addition to the frequency of repetitive self-injury, an analysis of the severity of self-injury cases presenting to British accident and emergency departments reveals that the majority are not classifiable as 'near fatal', suggesting that self-injury, even within clinical samples, is characterised by low-lethality (Douglas et al. 2004). Of 1,906 episodes of self-injury Douglas et al. (2004) found 8% could be classified as near fatal, the majority of which were drug overdoses. These findings provide preliminary evidence that the majority of individuals who seek medical assistance do not engage in highly lethal self-injury (Douglas et al. 2004). However, it is noteworthy that the percentage of individuals with a wish to die did not appear to differ greatly between these groups. Seventy-six percent and 60% of individuals in the near fatal and less severe self-injury groups respectively, indicated an intention to die in the context of their admission. This implies that lethality of harm and suicidal intent are distinct, and questions indices of self-injury which rely on harm severity as indictors of either suicidal intent or psychopathology.

OTHER POPULATIONS

Self-injury has also been researched in institutional settings, motivated by reports that rates of suicide and self-injury are significantly higher in prisoner populations than in the community. As noted by Ireland (2000) it has been argued that a more inclusive definition of self-injury be utilised with prison populations as it is common for prisoners to engage in highly lethal self-injury, with only a low level of suicidal intent. Ireland (2000) reported that irrespective of actual suicidal intent, more prisoners threaten rather than engage in self-injury (defined as skin-cutting or attempts to hang/strangle oneself). Ireland (2000) found that 15.7% of 60 adolescent inmates identified as at risk of, or engaging in self-injury, went on to further self-injure or display riskier behaviours in the future (Ireland 2000). However, it should be noted that despite the high prevalence of self-injury among incarcerated individuals compared with the general community, this does not necessarily translate into differences in the motivating and maintaining features of self-injury between prisoner and community-based populations (Haines et al. 1995).

Very little data on the prevalence of self-injury in Malaysia exist. Studies that have been conducted tend to recruit samples that self-injure, or audit hospital records. Between 1987 and 1995, 12.6% of poisoning cases at Hospital Universiti Sains Malaysia in Penang were recorded as intentional (Ab Rahman

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2002). Data collected at Penang General Hospital between 2000 and 2002 revealed that over half of poisoning cases were recorded as intentional, with overdose by paracetamol the most common method of poisoning (Fathelrahman et al. 2005), a trend that persisted over subsequent years (Fathelrahman et al. 2008; Fathelrahman et al. 2006). However, suicidal intent was not assessed in any of these studies. Consequently it is not possible to determine whether intentional poisoning was a form of self-injury or a suicide attempt.

While significant research attention has been devoted to examining suicide in the South East Asia region, very little work has explored self-injury, with or without suicidal intent. Table 1 summarises some of the literature in this area. The majority of studies recruited participants who had been admitted to hospital due to a suicide attempt, and the primary method of data collection involved examining case files. While such methods give a preliminary understanding of factors associated with suicidal behaviour, they do not allow a detailed examination of prevalence rates, motives for suicidal behaviour or an understanding of non-suicidal self-injury. Among these studies, risk factors for suicidal behaviour appeared to include: being Indian, being female, a history of depression or anxiety, substance abuse, previous suicidal behaviour and access to means such as pesticides.

Two large studies of Chinese adolescents revealed prevalence rates consistent with those from Western countries. In a sample of 1,361 adolescents, Wong et al. (2007) observed 10.9% reported suicidal behaviour, with 5.6% reporting non-suicidal self-injury. Similarly, Liu et al. (2008) found a self-harm rate of 3.2% among 1920 young people, when assessed via parent report. In these studies a history of depression, anxiety, life stress, family conflict and suicidal ideation were related to deliberate self harm. In India, a household survey of 214 adults revealed that 7.0% reported a history of self-harm, most commonly ingestion of pesticides (Chowdhury et al. 2005).

In summary, heterogeneity in definitions of self-injury has significantly undermined the comparability of research studies. The failure of many researchers to separate self-injury which occurs with and without suicidal intent, makes drawing inferences about either group problematic due to the discrepancies in the intentions and mental-states of suicidal and non-suicidal individuals. That differences appear to exist between suicidal and non-suicidal self-injurers in terms of prevalence, outlook on life and levels of psychopathology reinforce the need to separate these groups. Research comparing self-injury (as defined in the present paper) in clinical and non-clinical populations would permit greater understanding of the qualitative differences in number and characteristics of adolescents who report self-injury, and those who present to hospital. Furthermore, such research would provide important information about the ratio of individuals in community and psychiatric populations who do and do not report self-injury, as well as insight into the generalisability of clinical data to community-based self-injurers.

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TABLE 1. Summary of studies examining self-harm in South East Asia

Country	Author	Construct	Sample	Method	Prevalence	Risk factors
Malaysia	Fathelrahman et al. (2008)	Intentional poisoning	230 patients admitted for DSH	Review of medical records	N/A	
	Fathelrahman et al. (2006)	Intentional poisoning	100 patients admitted for DSH 200 patients without DSH	Case control Questionnaire	N/A	- Psychiatric illness - Relationship problems - Indian/Chinese
	Fathelrahman et al. (2005)	Intentional poisoning	493 patients admitted for DSH	Case review	N/A	- Female - Access to paracetamol
	Chee et al. (2003)	Deliberate self-harm	Patients admitted for DSH	Interview Case notes	N/A	
	Ab Rahman (2002)	Intentional poisoning	469 cases admitted to hospital for poisoning	Review of medical records	N/A	
	Maniam (1998)	Suicide Parasuicide	95 cases of suicide134 cases of parasuicide		N/A	
	Hussain & Zafri (1997)	Parasuicide	146 couples admitted to hospital for parasuicide	Interview	N/A	- Indian - Married longer than 10 years - Fewer than 2 children
Pakistan	Shahid et al. (2009)	Deliberate self-harm	98 hospital patients	Chart review	N/A	No psych ssessment
Hong Kong	Lui (2009)	Self-harm Suicide	234 patients with schizophrenia	Case notes Discharge summaries	20.5% DSH	- Depressed mood - Previous attempts
	Wong et al. (2007)	Deliberate self-injury Suicide attempt	1361 Chinese adolescents	Questionnaire	10.9% DSH 5.6% NSSI	- Depression Anxiety - Life stress - Suicidal ideation
	Simpson & Ng (1992)	Attempted suicide Self-mutilation	26 Philipino Chinese & 447 hospital patients	Retrospective reports	N/A	Immigration
India	Parkar et al. (2008)	Deliberate self-harm	196 patients admitted to hospital for DSH	Interview	N/A	- Depression - Substance use - Social & situational factors
	Parkar et al. (2006)	Deliberate self-harm	196 patients admitted to hospital for DSH	Interview	N/A	- Depression - Substance use

(*continued*)

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TABLE 1. *Continued*

Country	Author	Construct	Sample	Method	Prevalence	Risk factors
	Chowdhury et al. (2005)	Deliberate self-harm Suicide	214 community adults	Household survey	7.0% DSH	Access to pesticides
	Chowdhury et al. (2003)	Deliberate self-harm	448 admissions to hospital for DSH	Retrospective & prospective data from admissions	N/A	Access to pesticides
China	Liu et al. (2008)	Suicidal behaviour	1920 adolescents	Questionnaire	3.2% DSH	- Depression - Poor maternal health - Family conflict - Physical punishment
Singapore	Wai & Hoek (1998)	Parasuicide	814 patients admitted to hospital for parasuicide	Hospital records	N/A	- Female - Indian
	Lim & Ang (1992)	Parasuicide	156 Male conscripts	Retrospective records	N/A	Interpersonal problems

PURPOSE AND AETIOLOGY OF SELF-INJURY

Research into the reasons why individuals self-injure has produced some consensus among researchers, concerning the functions of self-injury. The highly communicative function of self-injury has been widely recognised (Favazza 1989), however, much of the research in this area has been undertaken within clinical populations. Zoltnick et al. (1996) found that a clinical sample of adult female repetitive self-injurers demonstrated a greater level of Alexithymia, compared to hospitalised controls with no history of self-injury. This finding endorses the likelihood that a communicative endeavour underlies self-injury, yet also implies a manipulative and attention-seeking function of the behaviour. Although attempts to manipulate others through threat or actual self-injury are well documented in prisoner populations (Ireland 2000) many authors argue that self-injury continues to be viewed negatively for this reason by many health care professionals (Hawton et al. 1982; Huband & Tantam 2000). Such reportedly negative opinions have important implications for the proficient delivery of mental health and other services to self-injurers who present for treatment.

In contrast to the behaviour of female adults (Zoltnick et al. 1996), an evaluation of a clinical sample of 42 adolescents undertaken by Nixon et al. (2002) found that the expression of frustration and anger/revenge featured in 30% and 28% of adolescents' reasons for repetitive self-injury, respectively, whereas only 4% endorsed to "get care or attention from others" as a reason for their behaviour. This suggests that, amongst adolescents, the behaviour

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functions in a communicative as opposed to manipulative manner as suggested by Zoltnick et al. (1996) study. It should be noted, however, that the comparability of these and other studies is compromised by variability in the age of participants. As self-injury has been consistently found to commence in adolescence, the reasons adolescents provide for their self-injury may differ to those provided by adults who have been self-injuring for a relatively longer period. Greater research is needed to draw out differences between 'new' and 'chronic' self-injurers, to explore whether the communicative (or other) roles of self-injury differ over the life-span of the behaviour. Moreover, as self-injury is typically an extremely private act for which help is rarely sought (Hawton et al. 2002), this undermines suggestions of a communicative function. Many individuals inflict harm on body areas that can be easily concealed and are subsequently hidden from view (Murray et al. 2005), implying some other function, such as affect regulation, motivates the behaviour.

EMOTION REGULATION

Research evaluating the aetiology and function of self-injury identifies affect-regulation as a key motivating and reinforcing function of the behaviour (Favazza & Rosenthal 1993; Klonsky 2005). In support of this, self-injury has been reported to provide escapism and tension relief (Boergers et al. 1998; Nixon et al. 2002), ease anger (Crowell et al. 2005), reduce feelings of anxiety, confusion and depression (Murray et al. 2005), as well as provide general respite from a 'terrible state of mind' (Hawton et al. 2006). However, as studies such as by Boergers et al. (1998) and Nixon et al. (2002) have been undertaken retrospectively with adolescents presenting to hospital for treatment, they do not assess fluctuation in emotional affect before, during or after self-injury.

To address this oversight, Murray et al. (2005) conducted an internet-based survey of the fluctuation in negative affect of 128 12-19 year olds before during and after self-injury. Although the reliability of internet data is not without issue and the study comprised mainly females (88.3%), most adolescents felt more anxious, confused and depressed immediately before, compared with after self-injuring, implying that self-injury is an activity which relieves rather than heightens negative affect. Similarly, Ross and Heath (2003) examined whether models of either hostility or anxiety reduction differentiated self-injurers and age-matched controls. They found adolescents who self-injured reported greater levels of hostility overall, with increased extrapunitve (e.g. a tendency to be critical of others) and intropunitive (e.g. tendency to be self-critical) tendencies, as well as elevated trait and state anxiety, prior to self-injury, relative to controls (Ross & Heath 2003). Taken together, these findings imply that self-injury reduces negative feelings and emotions, however the role of these in the aetiology of the behaviour clearly requires further address.

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Although informative, research involving correlational designs prevents conclusions about the aetiological role of anxiety, tension and other negative emotions in self-injury, and does not clarify whether the behaviour is motivated or perpetuated by negative life experiences. It has been found that adolescents who self-injure experience greater levels of generalised anxiety and hostility, which peak prior to an episode of self-injury (Crowell et al. 2005). This implies that a developmentally acquired or biological sensitivity to stress may feature in its aetiology. In relation to this, Crowell et al. (2005) investigated a range of psychophysical measures of emotion regulation and psychopathology. The authors found that autonomic measures of emotion regulation – namely the influence of the parasympathetic nervous system on cardiac activity – was attenuated in self-harming compared with control adolescents. This suggests that self-harming individuals regulate their emotions relatively poorly compared to controls (Crowell et al. 2005), and accords with the reportedly less adaptive coping styles of self-injurers relative to controls (Marusic & Goodwin 2006).

Similarly, Haines et al. (1995) measured the psychophysical arousal of 38 male prisoners during four stages of a personalised episode of imagined self-injury. Compared with controls, self-injurers demonstrated greater arousal in response to a neutral imagined event and a significant reduction in all but one measure of psychophysical arousal during an imagined act of self-injury (Haines et al. 1995). This indicates that self-injurers display relatively greater baseline levels of arousal, which, in-turn, may underlie a greater sensitivity and subsequent reactivity to aversive events. That arousal was attenuated during and immediately following imagined self-injury, supports the reinforcing, tension reducing properties of self-injury.

Differences in cortical behaviour and brain serotonergic systems in this population have also been evaluated. Crowell et al. (2005) observed weakened serotonin levels in a clinical sample of self-injurers, which appears associated with impulsivity and Borderline Personality Disorder (Soloff et al. 2003). Prefrontal cortical hypometabolism also co-occurs with aggressive and impulsive behaviours (suggesting a modulatory role of the prefrontal cortex in impulsive and aggressive behaviour), in patients with Borderline Personality Disorder (Soloff et al. 2003). Taken together, these and Crowell et al. (2005)'s findings provide emerging evidence of a biological basis of self-injury.

As self-injury is most common among adolescents, several researchers have examined the potential relationship between self-injury and puberty. In Australia and the US, late puberty is associated with self-harm, particularly self-laceration and self-poisoning (Patton et al. 2007). However age was observed to be a protective factor, suggesting that adolescents who enter puberty at a younger age are at greater risk of self-harm. Conversely, in Kuala Lumpur, self-harm in girls was observed to be related to the follicular phase of the menstrual

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cycle, later onset of menarche, and shorter duration of menses (Ainsah et al. 2008). Although research in this area is just emerging, these studies suggest biological changes associated with puberty may be implicated in self-harm, and may explain the higher prevalence of the behaviour among adolescents.

PSYCHIATRIC COMORBIDITY

One of the most frequently researched populations are those with a diagnosis of Borderline Personality Disorder (BPD), Brown et al. (2002), Soloff et al. (2003), most notably because self-injury is a clinical feature of this disorder (APA 2000). In an exploration of the reasons for self-injury in this group Brown et al. (2002) found that a small sample (N = 75) of women diagnosed with BPD engaged in self-injury to express anger, punish themselves, reinstate feelings of normality and for the purposes of distraction.

The prevalence and characteristics of self-injury among inpatient females diagnosed with eating disorders has also been explored (Paul et al. 2002). Paul et al. (2002) report a 34% lifetime prevalence of self-injury, with 49% of their sample reporting commencement of self-injury after their eating disorder. This accords with Murray et al. (2005)'s internet survey of adolescent self-injurers in which they found 30% and over 25% of respondents reported a history of anorexia and bulimia, respectively. Irrespective of the fact that the high prevalence of adolescents with eating disorders in Murray et al. (2005)'s sample may have been partly attributable to sampling bias, together these data strongly suggest that individuals with eating disorders are at significant risk of self-injury, and as such, are a population who should be routinely screened for the behaviour (Paul et al. 2002).

However, it should be noted that studies investigating both borderline, and other clinical and non-clinical populations, still fail to inform researchers of the direction of the relationship between self-injury and psychopathology. Klonsky et al. (2003)'s study suggests that self-injury is more common in non-psychiatric individuals who display attributes consistent with personality disorders, implying that personality pathology features in the aetiology of self-injury. However, evidence from biological studies involving self-injurers with BPD, suggest that neurological differences between BPD patients and controls may be the cause of impulsive and poorly regulated behaviour associated with self-injury. It is likely that the expression of biologically determined differences depends on environmental triggers.

In addition to personality and eating disorders, the relationship between self-injury, depression and anxiety (Hawton et al. 2002; Klonsky et al. 2003) has been demonstrated in community samples, and self-injury has also been found to co-occur with heightened anxiety and depression in clinical groups (Paul et al. 2002). Ross and Heath (2003) reported that in an adolescent community sample, those who self-injure experience greater levels of trait and state anxiety,

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with similar findings replicated in non-clinical adult groups (Klonsky et al. 2003). The link between psychiatric morbidity and self-harm more generally, has also been demonstrated within a large sample of Australian 15 and 16-year-old school students (Patton et al. 1997). An assessment of psychiatric morbidity (operationalised by symptoms of depression and anxiety) revealed that males and females experiencing significant anxiety and depression were 12 and 15 times more likely to engage in self-harm, respectively (Patton et al. 1997).

Furthermore, use of drugs and alcohol have also been identified as a key risk-factors for adolescent self-injury (Patton et al. 1997; Sinclair & Green 2005; Zoltnick et al. 1996) with reports that the percentage of self-injurious episodes involving alcohol (suicidal intent not specified) is increasing in males and females (O' Loughlin & Sherwood 2005). In support of this, Hawton et al. (2002) observed an elevation in adolescents' self-injurious behaviour (including self-poisoning) commensurate with increasing consumption of alcohol or cigarettes and, in females, with frequency of intoxication.

The disinhibiting impact of alcohol has also been explored in adults (Sinclair & Green 2005). A key theme emerging from 26 retrospective accounts of self-injury was recognition of alcohol as a factor which exacerbated negative affect, and attenuated participants' ability to inhibit urges to self-injure (Sinclair & Green 2005). More recently, Williams & Hasking (2009) observed that, among young adults, the protective effect of adaptive coping strategies diminished if participants also reported drinking alcohol at risky levels. Although these data provide evidence that self-injury and alcohol consumption are related, the causative relationship between these variables remains unknown. As such, circularity in whether alcohol use predisposes individuals to self-injury or vice versa is unavoidable. Greater research is required to explore the exact role of alcohol and illicit substances in precipitating and maintaining episodes of self-injury, with research comparing community and clinical populations likely to yield important clues as to the nature of this relationship.

PSYCHOSOCIAL FACTORS

While psychiatric morbidity is associated with self-injury, several psychosocial risk factors have also been identified. In light of the previously mentioned tension reducing and anxiolytic properties of self-injury, the coping styles of individuals who self-injure have also been explored. Marusic and Goodwin (2006) evaluated differences in the coping practices of patients who fantasised about non-suicidal self-injury, and found they exhibited more avoidant coping styles relative to non-suicidal non-self-injuring controls. Individuals who self-injure also demonstrate greater impulsivity (Hawton et al. 2002; Paul et al. 2002), hostility (Ross & Heath 2003) and low self-esteem (Hawton et al. 2002). Frequent and multiple antisocial behaviours as well as sexually activity have been associated with a five-fold increase in self-injury (intent not specified, Patton et

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al. 1997). It could be argued that these diverse findings are linked by a common theme involving an underlying inability to modulate one's behaviour and inhibit behavioural impulses.

Bullying, physical and sexual abuse are also related to self-injurious behaviour (Hawton et al. 2002; Santa Mina & Gallop 1998; Zoltnick et al. 1996). In an internet survey of 128 self-injurers aged 19 years old and under, Murray et al. (2005) found that over 30% of respondents reported physical abuse and 29% reported a previous history of sexual abuse. However, as 50% of surveyed individuals indicated a past suicidal attempt, the high prevalence of sexual and physical abuse may be more consistent with suicidal as opposed to non-suicidal self-injury.

Similarly, Romans et al. (1995) evaluated the association between childhood sexual abuse in a sample of 252 women sexually abused as children, and non-abused controls. The authors applied a broad definition of self-injury as 'all acts considered as self-destructive', and did not distinguish between suicidal and non-suicidal self-injury. Of the 4.8% of women reporting a history of self-injury, 22 of these 23 individuals were from the group with a history of sexual abuse (Romans et al. 1995). However, that the overall prevalence of self-injury across both participant groups was not higher is somewhat surprising given the inclusive definition of self-injury applied by Romans et al. (1995).

Increased self-injury (regardless of suicidal intent) has also been also associated with exposure to self-harm via friends or family (De Leo & Heller 2004; Hawton et al. 2002). As such, the notion of contagion is a valid variable to consider in the aetiology of self-injury (Poijula et al. 2001; Walsh & Rosen 1985). As discussed by Walsh and Rosen (1985), contagion effects observed in clinical samples of adolescents, imply that contagion may be a confounding factor in studies that have examined the aetiology of self-injury in clinical or other group settings. Contagion also highlights the role of group or social factors in the origin of self-injury (Walsh & Rosen 1985) and is consistent with Favazza (1998)'s argument that self-injury be viewed within cultural or 'in-group' contexts, reinforcing claims that social conformity and vicarious experience may feature in the commencement of self-injury (Young et al. 2006).

However, others have found no evidence of contagion effects (King et al. 1995). Nixon et al. (2002) reported that in the sample of 42 adolescents engaging in self-injurious behaviours and receiving medical care at a tertiary care teaching hospital, only 1 cited 'belonging to a group' as the reason for their self-injury. A non-significant result was also found after testing a similar hypothesis in a study by Kumar et al. (2004). No studies to our knowledge have examined contagion effects in a general sample of adolescents. Future research studies should include measures designed to detect possible contagion effects, to allow such effects to be examined or statistically controlled, when examining the attributes of individuals who self-injure.

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In Malaysia, similar correlates have been associated with intentional poisoning, however as noted previously it is not clear whether poisoning cases represent self-injury or a suicide attempt. In Penang, marital and relationship problems, psychiatric history, previous poisoning, and living with fewer than five people were identified as risk factors for poisoning, relative to a control group of patients who were not admitted to hospital for poisoning (Fathelraham et al. 2006). Relationship problems were also identified as a key predictor of parasuicide in a sample of married couples in Kuala Lumpur (Hussain & Zafri 1997), and among patients admitted for deliberate poisoning in Penang General Hospital (Fathelraham et al. 2008). Similarly, depression was a common feature among patients admitted to Sarawak General Hospital for self-harm (Chee et al. 2003), and is related to suicidal tendencies among secondary school children in Selangor (Ramli et al. 2008).

These findings suggest the risk factors and correlates of self-injury are similar in Malaysia as in other parts of the world. However it is also likely that culturally-specific risk factors are apparent. For example, ethnicity appears to be related to suicidal behaviour in Malaysia, with Indians over-represented and Malays under-represented in cases of intentional poisoning and parasuicide (Chee et al. 2003; Fathelraham et al. 2002; Morris & Maniam 2001). However recent data suggests that self-harm, predominantly poisoning, in Kuala Lumpur (regardless of suicidal intent) is more common among young Malay girls (Ainsah et al. 2008). Of note, more than half this sample reported 'medium' suicidal intent, suggesting that in some cases of intentional poisoning, suicide is not the intention.

Similarly, the relationships between alcohol, illicit drug use and self-injury in Malaysia may differ from those observed in Western countries. Since alcohol use is prohibited for Malay Muslims, and drug use is subject to severe penalties for all people in Malaysia, drug and alcohol use tend to be lower than in other parts of the world where alcohol use is encouraged and some drug use tolerated. Exploration of other risk and protective factors related to self-injury in Malaysia is essential to informing effective prevention and early intervention initiatives.

DIRECTIONS FOR FUTURE RESEARCH

Review of the empirical literature to date identifies several aspects of self-injury which require further research attention, both in Malaysia and in other parts of the world. Although many of the studies previously reviewed offer useful insight into self-injury, differences in methodological and definitional approach mean that many questions remain only partially answered. Of note, a review of the literature did not reveal a single study that explicitly examined self-injury (as defined in this paper) conducted with Malaysian participants. Studies that examine self-harm or parasuicide included acts which may have been suicide attempts (Ainsah et al. 2008; Chee et al. 2003). Further, examination of suicidal

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behaviour more generally, among adolescent samples in Malaysia is lacking. If, as previous research suggests, adolescents who self-injure are vulnerable to long term adverse mental health outcomes and increased risk of suicide, it is important we understand the progression of severity, and possible tipping points along the life trajectory. If researchers and clinicians are to understand self-injury, its relationship to suicide and other psychological problems and identify risk and protective factors, examination of adolescent samples is imperative.

In addition, most of our knowledge regarding self-injury comes from research conducted in Western countries, yet clear cultural differences are apparent in suicidal behaviour. Consequently application of research findings to Malaysian society may be inappropriate. Research conducted with local samples is imperative to identifying risk and protective factors and to informing culturally appropriate prevention and early intervention initiatives.

PREVALENCE OF SELF-INJURY

Of utmost importance is the need to establish more accurate prevalence rates of adolescent self-injury using a benchmark definition of the behaviour. Further the majority of studies examining the extent of self-injury use figures from hospital admissions. However, as few as 30% of those who self-injure present to health professionals, suggesting these data may grossly underestimate the prevalence of the behaviour (Murray et al. 2005). Research within community samples would elicit more accurate data on the prevalence of self-injury within non-clinical groups. Analogous research in clinical populations would provide the opportunity to compare prevalence data between these groups, and should provide insight into the generalisability of clinical findings to community samples. Similarly, detailed examination of the characteristics of self-injury would be informative. For example, affective disorders and suicide rates vary with seasonal variation. It is possible that self-injury also reflects seasonal variation, however at this stage there is no research to suggest this.

Past studies have almost invariably dichotomised individuals into those who self-injure and those who do not, yet it is clear that the extent of self-injury varies from superficial harm to life-threatening behaviour. Such different types of self-injury may well occur for different reasons, and have different correlates and psychological trajectories which need to be established and explored empirically. Obtaining more detailed information about harm nature and severity would provide a method of classifying the behaviour. This would permit clarification of sub-types of self-injurers and their accompanying attributes, which is likely to facilitate more specific frameworks of understanding and, in turn, inform early intervention strategies.

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It is known that self-injury exists alongside a range of psychiatric, psychosocial, and demographic correlates. However, the correlates of self-injury, especially in non-clinical, populations need to be more systematically addressed. Based on observations that some adolescent sub-cultures are at greater risk of self-injury (Young et al. 2006) an understanding of adolescents' views of self-injury and the attributes ascribed to those who engage in the behaviour, would offer an effective way of tapping the extent of peer-approved self-injury. Such research may also expose subtypes of individuals who are engaging in peer-approved self-injury, and who may qualitatively differ from those who believe self-injury is viewed negatively by their peers. Understanding the interaction between adolescent sub-group norms and behaviours such as self-injury is likely to provide vital insight into the how schools, parents and clinicians can most effectively tackle the behaviour, at both an individual and group level.

Furthermore, although the emotion regulatory function of self-injury is well established, relatively little is known about exactly how those who self-injure regulate their emotions, compared to non-self-injuring counterparts in clinical and non-clinical groups. Research into self-injurers' emotion regulation styles may expose maladaptive thoughts or behaviours which could be addressed therapeutically. Further, although many studies have independently examined the roles of emotion regulation, coping and psychological morbidity among those who self-injure, few have examined how these factors may work together in the aetiology of self-injury. Recently Hasking et al. (under review) observed that the relationship between personality and self-injury was moderated by both emotion regulation and coping strategies in a sample of adolescents. Further research exploring the causal relationships between identified risk factors would assist in clarifying the aetiological pathways leading to self-injury.

Similarly, exploration of the relationship between emotion regulation and psychiatric morbidity would elicit much needed insight into the interrelations between these variables and may account for the apparently greater prevalence of self-injury within clinical samples. Additionally, although apparently separate states of mind, self-injury with and without suicidal intent may indeed co-exist within the same person and wax and wane over time. Therefore, the findings of studies which have failed to address the issue of intent of participant's self-injury, or, those who have done so but failed to observe differences between groups, may be attributable to comorbidity of suicidal and non-suicidal intentions among participants. In order to better understand these relationships, longitudinal studies which explore non-suicidal self-injury should embed measures of suicidality in their designs to capture both the unique and interrelated characteristics of these two groups. Furthermore, examination of relationships between these correlates in Malaysia is necessary. As noted previously, relationships between identified risk factors may differ in Malaysia, and other cultural risk and protective factors may be identified.

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Recent research has demonstrated the role of serotonergic systems in the modulation of impulsive and aggressive behaviour in samples of individuals who self-injure (Soloff et al. 2003). Although data in this area of research is largely consistent, research in animal models may provide a new and more readily controllable environment in which to explore the relationship between neurobiology and self-injury (Dellinger-Ness & Handler 2006). In particular, investigation into the neurobiological basis of the correlates (such as depression and anxiety) and functions (such as tension reduction) of self-injury would provide a biological backdrop against which to conceptualise self-injury.

In addition to further research on the prevalence, psychological and neurobiological attributes of adolescents who self-injure, other health-related behaviours of this population are worthy of further research. Preliminary findings that self-injury may be associated with alcohol use, low levels of smoking, illicit drug use and other risk-taking behaviours suggest that a greater number of self-harmers may reside in these 'at-risk' populations. In order for the stakeholders in mental health to effectively address self-injury, greater understanding of health-related risk-taking behaviours which co-occur with self-injury could offer insight into new ways of addressing the behaviour. Preliminary findings that these risk-taking behaviours appear to co-occur with self-injury, suggest that a holistic intervention programme could address these behaviours simultaneously, if they are explored in greater detail.

In summary, there exist several avenues of research into self-injury which require further research. Studies need to be conducted in clinical and non-clinical samples to establish more accurate estimates of self-injury with a unified definition of the behaviour. Similarly, the correlates of self-injury need to be more fully explored with research evaluating proposed biological determinants in animal models to ascertain the direction of causality between neurobiology and certain life experiences.

CONCLUSION

Research regarding self-injury in Malaysia is sorely lacking, yet anecdotal reports suggest it is a behaviour that is increasing, especially among young women. International research on the prevalence, aetiology and correlates of self-injury has yielded largely mixed results. This is in part due to the failure of many studies to define self-injury accurately and to differentiate between suicidal and non-suicidal self-injurers. That individuals presenting to hospital departments have been the subject of extensive research is testimony to the comparatively greater research attention that suicide has attracted.

It is clear that if the spectrum of self-injury is to be fully understood, research must explore the behaviour in western and non-western samples and

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assess the nature, prevalence and origins of self-injury across culture in both clinical and community contexts. Overly generalised, definitional inconsistencies omnipresent in western research, has made comparing research findings difficult. However, there seems currently an emerging consensus in the literature to differentiate between self-injury which occurs with and without suicidal intent. Culturally rich and ethically diverse countries such as Malaysia are now in a position to benefit from previous research failings, to commission quality research with clear definitions of self-injury which can be directly comparable with the international literature which has focussed on self-injury exclusively. Such research is essential in the Malaysian context in order to inform culturally appropriate prevention and intervention initiatives.

Furthermore, when a statistically rare event such as a suicide (Owens et al. 2002) or a perceived suicide attempt is adopted as a primary mental health indictor, it risks demoting the status of mental health and particularly preventative mental health, as worthwhile of public and governmental address (McCarthy & Davidson 1994). An alternative barometer of mental health, such as self-injury, may thus offer a more representative and insightful vantage point from which to evaluate the mental health of adolescents in western and non-western societies (McCarthy & Davidson 1994). This would illuminate the preventative measures which could be put in place to reduce suicide. If further analysis of the correlates of self-injury are undertaken, global assessment of what happens around self-injury should provide a greater understanding of the texture of the behaviour - knowledge which appears vital if self-injury is to be understood fully and addressed effectively.

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