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and Coping**

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Testing a Process Model of Self-Injury:  
Stress, Affect Regulation, and Coping

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## Abstract

Key propositions of the Traumagenic Model of Self-Injury (Yates, 2004) and the affect regulation model of self-injury in adolescents (Briere & Gil, 1998; Yates, 2004) were investigated within the wider developmental psychopathology perspective. Drawing from these theories and the relevant empirical evidence, a series of hypotheses were proposed that focused on self-injury as a correlate of affect regulation, coping and stress processes (daily hassles and life events), a history of maltreatment, neuroticism, and symptoms of depression and anxiety among adolescents. The research involved a large cross-sectional study (Study 1) of university students aged 16 to 18 years ( $N = 537$ ), a smaller cross-sectional study (Study 2) of adolescent seeking clinical mental health services aged 13 to 17 years ( $N = 55$ ), and a diary study with those same adolescents seeking clinical services. All studies were designed to examine covariation between some or all of the constructs mentioned above, and to examine and compare patterns of affect, coping and stress over a short period of time. Only one aspect of affect regulation, clarity of feelings, and the personality characteristic of neuroticism were associated with self-injurious behaviour among both the university students and the clinical adolescents. However there were a number of correlates of self-injury that were found within one sample and not the other. The clinical and university studies differed in terms of which aspects of maltreatment, daily hassles, and coping were associated with self-injury. In addition to these quantitative comparisons of self-injurers to other young people, a phenomenological analysis was completed to provide a greater depth of understanding about adolescents' perceptions of their self-injurious behaviours. The accounts from adolescents gathered and summarised were generally consistent with some of the quantitative findings, but added depth and meaning.

Support was found for the affect regulation theory of self-injury, and a traumagenic model confirming the importance of adolescents' affect regulation ability and maltreatment in the development of self-injury. More specifically, support was found for the affect regulation aspect of clarity of feelings as a unique correlate of self-injury. In addition, what appears of more importance than actual events or coping behaviours utilised by individuals are the adolescents' perceptions of the stressfulness experienced from the events and the usefulness of coping strategies used. Findings point to the need to focus on affect regulation, especially recognition and clarity of affect, adaptive coping strategies, and social support within clinical work with adolescents who self-injure. Seven directions were suggested for future research, including more focus on negative affect, affect regulation, impulsivity, examination of expectancy beliefs in relation to coping, examination of moderating and mediating processes in adolescent self-injury, possible multiple self-injury trajectories, and diary studies.

## Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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Alison L. Bocquée

February, 2007

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## CHAPTER 1

### Overview

Self-injury is a perplexing and complex behaviour. This complexity is clear when reading the clinical and scientific literatures. For example, even though there has been much written about self-injury in recent years, there continues to be little consensus about the meaning and importance of self-injury. In addition, much has been written about why self-injury may occur among adolescents and adults, but clinical and other researchers have described a variety of views on causality, and there has been no theoretical consensus among them. Previous research on self-injury offers various viewpoints of the importance and intention of the self-injurious acts for the individuals whom engage in this behaviour.

The lack of consensus in definition and theory makes it difficult to summarise the empirical research. In particular, a variety of behaviours have been included in the assessment of self-injury in some studies, but not included in others. In addition, there are two specific definitional limitations within the empirical study of self-injury. First, research has used definitions that are either detailed and complicated, or general and simplistic, and definitions have varied in terms of their consideration of damage, intent, and purposefulness/deliberateness. Second, the examination of suicidal behaviours in addition to non-lethal, self-injuring behaviours has resulted in confusion and difficulty when synthesising the literature. In relation to these two definitional concerns, Favazza (1998) suggests that two definitional advances are of primary importance for the research of self-injury. First, a more precise definition of self-injury must be used across all studies. Second, self-injury must be differentiated from suicidal behaviours for a more complete understanding of the nature of the individuals who engage in non-lethal, self-injurious behaviours.

Whereas the current definitions of self-injury remain varied, there has been some progress in knowledge in recent years. Early perspectives on self-injury were based in psychodynamic theory, and considered self-injury as a symbolic, suicidal gesture (Menninger, 1935) and there continue to be some researchers who entwine self-injury with suicidal gestures. However, more contemporary researchers propose that self-injury should be considered as a set of behaviours that are distinct from suicidal behaviours (Favazza, 1998; Ross & McKay, 1979; Simpson & Porter, 1981; Suyemoto, 1998). In addition, there is now some acknowledgement of self-injury ideation, which may be distinct from suicidal ideation, although minimal research has actually examined



this. It is now thought that individuals' cognitions about engaging in self-injury should be assessed separate from their actual behaviours.

In past research, multiple theories have been drawn upon to explain self-injury. One of these is the developmental psychopathology theoretical perspective (Sroufe & Rutter, 1984). Propositions that are founded in this perspective can provide conceptual guidance for understanding the onset and development of maladaptation – in this case, the maladaptive behaviour of self-injury and thoughts of self-injury. Although this more global perspective on development and psychopathology is useful, other more detailed theories about why self-injury occurs have provided specific guidance for the studies completed here. These theories are affect regulation theory (Briere & Gil, 1998; Suyemoto, 1998; Yates, 2004) and the traumagenic model (Yates, 2004). Both theories suggest specific processes and mechanisms that may explain the occurrence of self-injury. To date there has been little research designed to test propositions of these theories. Using a precise definition and assessment of self-injury and measuring cognitions about self-injury, testing some of the propositions of these theories is the primary purpose of the studies completed here.

### *Affect Regulation Theory*

Several psychodynamic theoretical perspectives on self-injury propose that affect regulation, including the expression and control of affect, is one mechanism that accounts for the links between early childhood experiences, subsequent stressful experiences, and self-injury (Suyemoto & MacDonald, 1995). Some theorists (Darche, 1990; Raine, 1982) have proposed an expression model, whereby self-injury is explained as an expression of overwhelming and internally intolerable affect and redirects anger from others onto the self. Other theorists have proposed a control model (Raine, 1982). In this model, self-injury is viewed as an attempt to regain control by channelling the anger at the abandoning object against the self, or by enacting the anger that is perceived to be coming from the object and resulting in abandonment. Thus, theorists have suggested that the function of self-injury is to regulate affect through a balance between control and expression.

Many others have proposed theories congruent with the view that self-injury is related to difficulties with affect regulation (Allen, 1995; Brennum, 1984; Favazza & Favazza, 1987; Friedman, Glasser, Laufer, & Wohl, 1972; Rosen, Walsh, & Rode, 1990). However, there is limited research that has focused on whether self-injury is associated with processes of emotional control and expression in young people.

Previous research has examined individuals' self-reported affective *states* prior, during, and after self-injury, used self-report measures to identify the severity of *symptomatology* (e.g., depression, anxiety), and this has most often been done by comparing those who self-injure to those who do not. Empirical research has not examined individuals' capacities for affect *regulation* in relation to adolescent self-injury.

An individual's affect impacts on a diverse range of processes, both cognitive and behavioural (Gross, 1999a). In addition affect regulation is considered an essential aspect of personality functioning and is a key source of individual differences (Gross, 1999a). Affect regulation involves the processes individuals utilise to influence their affective experiences in terms of which affect, when they have them, and how they experience and express the affect (Gross, 1998). Furthermore, the way in which individuals manage states of prolonged negative affect or arousal is considered to be the most important aspect of affect regulation linked to the development of psychopathology (Bradley, 2000). This highlights that affect and affect regulation are individual, although related, constructs and need to be examined separately, which was done in the current studies.

#### *Traumagenic Model*

Yates' (2004) traumagenic model of self-injury provided additional guidance for the current thesis. Yates has drawn from empirical and theoretical literature with a special emphasis on organisational developmental theory (Sroufe, Egeland, & Carlson, 1999) to propose a traumagenic model for self-injury. This model identifies maltreatment in childhood as a critical experience in the development of self-injury. Maltreatment is expected to impact negatively on normative developmental processes in a number of ways, including the emerging sense of self, affect regulation, and relational patterns. From this perspective self-injury emerges from trauma-induced disruptions and is viewed as a "compensatory regulatory and relational strategy" (Yates, 2004, p. 54), which assists the individual to facilitate negotiation of developmental challenges. In other words, self-injury is a coping strategy that assists with the regulation of emotion and relationships. Research has shown that maltreatment experiences early in life are correlated with self-injurious behaviour in adolescence and theories provide comprehensive descriptions of developmental pathways and processes that include maltreatment (Cole & Putnam, 1992; Finkelhor & Browne, 1985; Yates, 2003). However the mechanisms proposed in this model have not frequently been tested and

are not fully understood. Specifically, there have been few studies of the roles of self-regulation including affect regulation and coping. In addition, later stressful experiences and individual attributes may be important considerations along with a history of maltreatment, regulation and coping. The examination of this combination of potential correlates of self-injury has not been done in previous research.

On the other hand, there is some evidence for this research direction and some support for the traumagenic model. Research has identified positive associations between self-injury and childhood abuse (e.g., Favazza & Conterio, 1989; van der Kolk et al., 1991). Other research by Garrison, Addy et al. (1993) reported a positive relationship between undesirable life events and risk of self-injury in adolescents.

The investigation of daily hassles in the current studies is supported by previous research which has shown experiences of daily hassles to be significantly associated with adolescent adjustment, and to be a significant and independent predictor of adjustment over and above any effects attributed to major life events (e.g., Compas, Davis, Forsythe, & Wagner, 1987; Rowlison & Felner, 1988; Wagner, Compas, & Howell, 1988).

Nonetheless, additional investigation of self-injury and multiple types of stressors is needed in order to clarify particular associations of self-injury with different types of stress, such as major life events, also called non-normative life events, and daily hassles in multiple domains (e.g., interpersonal hassles, intrapersonal hassles, and task hassles). In the current studies, regulation included affect regulation, as well as cognitive and behavioural regulation. Affect regulation was measured as attention to feelings, clarity of feelings, and feeling repair; whereas, consistent with current directions in studies of stress and coping (Skinner & Zimmer-Gembeck, 2007), cognitive and behavioural regulation were operationalised as coping strategies.

Consideration of three groups of evidence of associations, namely between some coping strategies and both internalising and externalising problems (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001), between self-injury and stressful life events (Garrison, Addy et al., 1993), and stressful events of both major and minor severity and internalising and externalising symptoms for adolescents (e.g., Grant et al., 2000), suggests that self-injury would be associated with a variety of categories of coping behaviour. Yet, there has been little empirical research that has examined the links between self-injury and thoughts of self-injury, affect, affect regulation, coping strategies, stress (major life events and daily hassles), stress reactivity (i.e., neuroticism), and maltreatment.

In the current studies, the personality construct of neuroticism was examined as a correlate of self-injury. This is consistent with the call within the developmental psychopathology framework to not just consider the social context, but also person-specific variables (e.g., Cicchetti & Rogosch, 1999; Sroufe & Rutter, 1984). An individual's temperament may function as a risk or protective factor for the development of psychopathology (Rothbart & Ahadi, 1994). Research has found that individuals high in neuroticism experience greater distress in response to major life stress (e.g., Ormel & Wohlfarth, 1991) and daily stressors (e.g., Suls, Martin, & David, 1998). Also neuroticism has been found to predict negative affect in everyday life (Costa & McCrae, 1980), and to explain significant amounts within- and across-day variation in negative mood (e.g., Marco & Suls, 1993). DeLongis and Holtzman (2005) hypothesised that individuals high in neuroticism appear to choose the wrong coping strategies for the situation. Given that self-injury has been conceptualised in the current research studies as a coping strategy, it was hypothesised that adolescents who utilise self-injury would also be higher in neuroticism.

Research has indicated self-injury to be related to the symptoms and diagnoses of anxiety and depression in adolescents (e.g., Darche, 1990; Garrison, Addy et al., 1993; Garrison, McKeown, Valois, & Vincent, 1993; Groholt, Ekeberg, Wichstrom, & Haldorsen, 2000; Martin, Rozanes, Pearce, & Allison, 1995; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003; Ross & Heath, 2002). The presence of depression, anxiety or both may be indicators of ineffective affect regulation, and past research has tended to view these symptoms as indicative of ineffectual affect regulation without specifically studying the affect regulation process, or they do so retrospectively. These comorbid conditions were important ones to assess in the current studies given their known associations with self-injury.

Kumar, Pepe and Steer (2004) found that adolescent inpatients reported the average age at which they started to cut themselves was 13.5 years old. Such evidence guided the current research studies to focus on adolescents. For the current research studies, it was important to consider the developmental stage of adolescence within the developmental psychopathology framework. The developmental psychopathology framework often organises psychopathology in contrast to normative milestones and sequences in areas such as physical, cognitive, social-emotional, and educational development (Achenbach, 1990). Therefore, a study of adolescent self-injurious behaviour must consider the normative developmental issues of adolescence in all of these domains. While the current research studies were not designed to directly study

the developmental issues pertinent to adolescence, it is important to have discussed these briefly to describe important aspects of the developmental period in which self-injury was studied. Also, recognition of the developmental and contextual aspects of adolescent self-injury is a requisite for understanding its causes and consequences.

Adolescence is a transitional developmental period between childhood and adulthood that is characterised by more biological, psychological, and social role changes than any other stage of life except infancy (Feldman & Elliott, 1990). However the majority of adolescents successfully manage the developmental demands of the adolescence period and do not display or experience extremes of functioning (Cicchetti & Rogosch, 2002; Ebata, Petersen, & Conger, 1990). Hence, the common belief that adolescence is a period of *storm and stress* is “neither universal nor inevitable” (Cicchetti & Rogosch, 2002, p. 6). Nevertheless, the number and type of changes experienced during early adolescence can have an impact on adolescent behaviours and developmental outcomes (Simmons, Burgeson, & Carlton-Ford, 1987).

The boundaries between normal and abnormal, or between normative struggles of adolescence (akin to behaviours that seem maladaptive but are typical for the age period, i.e., risk-taking behaviours, experimentation with drugs and alcohol) and psychopathology are not always evident (Cicchetti & Rogosch, 2002). It is of interest to differentiate between normative struggles versus the behaviours that are indicative of more serious psychopathology, and the developmental psychopathology perspective is helpful in doing this (Holmbeck & Kendall, 2002). Application of this to the current research indicates a need to understand affect regulation, coping, stressful life events, daily hassles and stress reactivity in adolescents functioning both in the community and in outpatient clinical settings, as well as between those who self-injure and those who do not.

### *Research Focus and Aims*

Drawing from these theories (i.e., affect regulation and traumagenic) and relevant empirical evidence, a series of hypotheses were proposed that focused on self-injury and thoughts of self-injury as correlates of affect, affect regulation, stress (daily hassles and life events), coping, a history of maltreatment, neuroticism, and symptoms of depression and anxiety among adolescents (e.g., Darche, 1990; Garrison, Addy et al., 1993; Martin et al., 1995; Ross & Heath, 2002). After a review of definitions and research, an operational definition of self-injury was derived from previous literature (Ross & Heath, 2002). The self-injurious behaviours included in the current studies

were cutting, burning, scratching, self-hitting, pinching, and biting. However, participants' perceptions of the reason for their behaviour also were considered, so that individuals who engaged in other self-injurious acts but did not express suicidal intent could be included in phenomenological analyses.

A series of two studies was conducted. One study included a university sample and a second study included a clinical sample. Both community and clinical samples were included to address some of the concerns about the generalisability of previous self-injury research findings and the over-reliance on clinical samples (e.g., Hurry, 2000; Whitlock, Powers, & Eckenrode, 2006).

In sum, hypotheses that have previously been derived from anecdotal evidence and tested with case studies or small samples were examined in the current studies using both a more specific definition of self-injury and larger samples of adolescents in two studies – one in a community sample (Study 1,  $N = 537$  adolescents ages 16 to 18 years) and one in a clinical outpatient setting (Study 2,  $N = 55$  adolescents ages 13 to 18 years). Similar hypotheses were tested in each study. In addition to testing propositions of relevant theories of the development of self-injury, a primary interest was in determining if results found when studying a community sample could be replicated with adolescents seeking clinical outpatient services.

Key propositions of the Traumagenic Model of Self-Injury (Yates, 2004) and the affect regulation model of self-injury in adolescents (Briere & Gil, 1998; Yates, 2004) were tested in both studies. There were seven primary aims of this thesis. The first aim was to test propositions of the affect regulation model of self-injury (Briere & Gil, 1998; Suyemoto, 1998) in a community sample of adolescents' aged 16 to 18 and an outpatient clinical sample of 13- to 18-year-olds. To do this, positive and negative affect were investigated as indicators of affect and correlates of affect regulation. Anxiety and depression were studied, also, as they have been identified in previous research as indicators of affect regulation problems, but no previous study has identified whether specific affect regulation difficulties (e.g., difficulties attending to feelings) are associated with self-injurious behaviour. Three aspects of affect regulation, namely attention to feelings, clarity of feelings, and feeling repair, were investigated in Studies 1 and 2.

A second aim was to examine whether self-injury was associated with individuals' regulatory behaviours and cognitions when under stress. Regulation of behaviour and cognition under stress was assessed by measuring individuals' coping strategies, which include cognitive and behavioural regulation (Skinner & Zimmer-

Gembeck, 2007). Self-injury and coping strategies were examined in Study 2 through the use of daily structured diary reports; this study design is unique thus far in the field of self-injury research. This research design was expected to provide valuable information about the dynamics and interrelationships of stress, coping, affect regulation, affect, individual attributes (i.e., neuroticism), and self-injury behaviour and self-injury ideation.

Since regulation under stress was of particular interest in the current study, affective, cognitive and behavioural regulation was operationalised as coping used by adolescents in response to stressful situations (Skinner & Zimmer-Gembeck, 2007). The inclusion of measures of anxiety, depression, positive and negative affect, affect regulation, and coping provided a broader assessment of individuals' regulation abilities and a more complete understanding, and allowed for the comparison of all of these components of affect, cognition, and behaviour between adolescents' with or without a history of self-injury. In addition to measuring self-injury, stress, affect, affect regulation and coping using interviews, questionnaires and cross-sectional study designs, this was examined by collecting data about daily experiences of self-injury, cognitions about self-injury, affect and affect regulation.

A third aim of the current thesis was to examine a history of maltreatment as a correlate of self-injury. Yates's (2004) traumagenic theory of self-injury provided a framework and was used to develop hypotheses about links between self-injury, maltreatment and affect regulation. The most commonly measured aspects of maltreatment (i.e., physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect) were investigated as a potential correlates of self-injury. Also, parental psychological control (Barber, Bean, & Erickson, 2002) was measured in the study of adolescents from the community. Psychological control has defined by Barber et al. (2002, p. 263) as a "psychologically oriented, intrusive, constraining, and manipulating form of parental control in which parents appear to maintain their own psychological status at the expense and violation of the child's self". There has been no previous study of parental psychological control and self-injury.

A fourth aim of this thesis was to examine daily hassles and major life events as correlates of self-injury. Stress was a focus given the view in many theories and clinical descriptions of self-injury as responses to stressful situations (Garrison, Addy et al., 1993). Past research has demonstrated the importance of daily hassles in relation to maladaptive functioning, yet no study had previously examined whether self-injury is correlated with experiences of stressful daily hassles in domains of importance to

adolescents. Research has consistently shown that daily hassles are significantly associated with adolescent adjustment, and are a significant and independent predictor of adjustment over and above any effects attributed to major life events (e.g., Wagner et al., 1988). Other theorists (e.g., Lazarus, 1990) speculate that it is the individuals' perceptions of the stressors that are more important than whether or not the stressor actually occurred. Therefore, the focus here was on the occurrence of stressful events and daily hassles, as well as the perceived stressfulness of objective events and hassles.

A fifth aim of the study was examined in only the sample of community adolescents. Interviews were conducted with a subset of these participants in order to investigate participants' perceived meaning of their experience of self-injury (Barker, 2002). Toward this end, individuals' perspectives on their self-injury behaviours and thoughts were gathered by using semi-structured interviews with participants who had a history of self-injurious behaviours and/or thoughts.

A sixth aim was to replicate and extend upon a previous study conducted with Canadian high school students (Ross & Heath, 2003). Research on self-injury has utilised multiple and varied methodology, which results in much difficulty when attempting to identify similarities and comparisons between studies. By using similar methodology to a previous study, an attempt was made to overcome this limitation, and allow for conclusions regarding similarities and differences between the current study findings and the findings reported by Ross and Heath.

Finally, a seventh aim was to include the personality aspect of neuroticism as a potential correlate of self-injury. The inclusion of neuroticism was derived from the developmental psychopathology perspective. Specifically, this perspective has described how individuals influence their environment, rather than simply being passive recipients of environmental forces (e.g., Cicchetti & Rogosch, 2002). Neuroticism was included as an individual characteristic that could affect how individuals interpret their environments, particularly their stressful experience, and influence their stress reactivity (Compas et al., 2001; Eysenck & Eysenck, 1985).

All proposed correlates of self-injury were assessed in a single testing session or were repeatedly measured using a diary method completed by participants once per day for seven days. The use of this daily structured diary methodology allowed the examination of patterns of affect, stress and coping over time, the comparison of these patterns between self-injurers and other adolescents, and the identification of particular patterns that occurred on days when young people self-injured or thought about self-injury. Combining this diary method with two single assessments (one before and one



after the diary) allowed for some consideration of the dynamics and interrelationships of stress (both major life events and daily hassles), coping, affect, affect regulation, individual attributes (i.e., neuroticism), and self-injury behaviour and self-injury ideation.

### *Organisation of the Thesis*

The following four chapters provide more background for the two studies conducted here, summarise the results of each study, and summarise and discuss all findings. In Chapter 2 a literature review is organised into two parts. The first part focuses on issues related to the conceptualisation and operationalisation of self-injury in previous research. This review highlights the variability among previous studies in relation to terminology, definitions, and types of self-injury studied. In addition, this section highlights the difficulty that occurs when attempting to synthesise the literature.

The second part of Chapter 2 reviews theoretical perspectives and empirical evidence that are central to the current thesis. This part provides a review of theoretical information in relation to the developmental psychopathology perspective, which provides the overarching framework for the current thesis. Two additional theories that are specific to self-injury, namely the affect regulation and traumagenic theories, are also reviewed. Theoretical and empirical evidence of personality and individual difference factors which are proposed to relate to self-injury in adolescents are also synthesised. The chapter concludes by providing a rationale for the current studies.

Chapter 3 describes the results of a study of adolescents attending university (a community sample; ages 16 to 18; Study 1). This study included two phases and is reported in three parts. The first phase was a cross-sectional survey with the primary aim to identify: 1) university students who engaged in self-injurious behaviour or self-injury ideation for participation in a semi-structured interview and additional survey study, and 2) a matched comparison group of those who did not engage in self-injurious behaviour or ideation. The results from this large survey study are reported as Study 1A. Study 1B is a verification through interviews of self-injurious behaviour, the assessment of potential correlates of self-injury behaviour, and a synthesis of phenomenological interviews of adolescents who reported self-injury. In Study 1C, participants verified as self-injurers in the semi-structured interview are compared to a group of matched non-self-injurious participants who completed additional survey items. Constructs compared were affect regulation, coping, maltreatment, depression, anxiety, stress, and neuroticism. In addition, adolescents who had hurt themselves in the past 12 months

were described and compared to adolescents with a history of self-injury who had not injured themselves in the past 12 months.

Chapter 4 presents the findings from Study 2. This study included adolescents who were seeking clinical services and reported self-injury (ages 13 to 17). This study included a cross-sectional survey, and a diary study with the same adolescents. Using this diary data, patterns of affect, coping, and daily stress over a short period of time were investigated. In addition, the questionnaire data allowed for the examination of covariation of self-injury with affect regulation, stress (i.e., major life events), neuroticism, depression, anxiety, and maltreatment.

Finally, a review and discussion of the studies, including the research aims and findings, are provided in Chapter 5. Similarities and differences between the two studies for all constructs are summarised. In addition, this chapter includes a discussion of implications for previous research, theory and clinical practice, and concludes with a summary of the methodological limitations and recommendations for further research.

## CHAPTER 2

In recent years there has been much written about self-injury. In fact, it appears that a 1997 *New York Times* article on self-injury (Egan, 1997), titled “The Thin Red Line” may have ignited the current interest in this behaviour. Although there is literature on self-injury published in the years prior to 1997 (e.g., Connors, 1996; Favazza & Favazza, 1987; Walsh & Rosen, 1988), since 1997 scholars appear to have put increasing effort into conceptualising, operationalising, and studying the correlates of self-injury. This has resulted in a variety of definitions of self-injury behaviours. For example, self-injury has been defined as “any deliberate, self-destructive physical behaviour” (Tulloch, Blizzard, & Pinkus, 1997, p. 268), as a “deliberate, non-life-threatening, self-effected bodily harm or disfigurement of a socially unacceptable nature” (Walsh & Rosen, 1988, p. 10), and as “any injury recognised by hospital staff as having been deliberately self-inflicted” (Hawton, Fagg, Simkin, Bale, & Bond, 2000, p. 48). These definitions have both similarities and differences that will be discussed later in this chapter.

The lack of consensus regarding definitions of self-injury also extends to the meaning and importance of self-injury. Some clinical practitioners and researchers have trivialised self-mutilation as simply “wrist-cutting”, others have misidentified it as suicide attempts, and/or regarded it solely as a symptom of borderline personality disorder (Favazza, 1998; Zlotnick, Mattia, & Zimmerman, 1999). Others (e.g., Kehrberg, 1997) argue that self-injury is culturally defined, with Western culture defining it as pathological, and that self-mutilation need not be considered pathological in all cultures (e.g., in indigenous cultures; Favazza, 1998). In actuality, despite a reasonably extensive literature into self-injury, relatively little information raised in these discussions has been grounded in empirical study. Until very recently, much of the knowledge on self-injuring behaviours has been derived from psychoanalytically oriented case-studies, studies of selected populations such as people who are developmentally delayed, incarcerated, or have additional mental health issues, and based on samples that have been fairly small in size (e.g., Brodsky, Coiltre, & Dulit, 1995; Garrison, McKeown et al., 1993; Haines & Williams, 1997; Zlotnick et al., 1999). At least a decade ago Connors (1996) summarised the literature into self-injury as “not extensive and ...largely based on clinical data from a range of theoretical perspectives augmented by limited descriptive or epidemiological research, personal commentary, and informal interview” (p. 197). The current review of the literature in the last decade

suggests that very little has changed, and that this field of study continues to be limited by theoretical, definitional, methodological, and design limitations.

### Definitional Issues

As mentioned above one of the most serious limitations of earlier research into self-injury is the lack of consensus regarding what behaviours actually constitute self-injury. After grappling with the range of definitions of self-injury that have been proposed and utilised in research, Favazza's (1999) definition of self-mutilation provided the most parsimonious operationalisation of this perplexing activity. According to Favazza, self-injury is defined as "the direct and deliberate destruction or alteration of body tissue without conscious suicidal intent" (Favazza, 1999, p. 125). However close examination of the operationalisations of self-injuring behaviours in the literature reveals that some research may have included behaviours that could be called suicidal rather than self-injurious. A prime example of this is that the term *self-harm* has also been used to refer to individuals admitted to general hospitals following self-poisoning/overdoses (e.g., Groholt et al., 2000; Hawton, Kingsbury, Steinhardt, James, & Fagg, 1999; McLaughlin, Miller, & Warwick, 1996; Milnes, Owens, & Blenkiron, 2002; Nadkarni, Parkin, Dogra, Stretch, & Evans, 2000; Sampson, Mukherjee, Ukoumunne, Mullan, & Bullock, 2004; Taiminen, Kallio-Soukainen, Nokso-Koivisto, Kaljonen, & Helenius, 1998). A summary of the empirical studies into adolescent self-injury completed between the years of 1989 and 2006 is provided in Table 2.1, indicating the prevalence of self injury, range of methods used, measurements undertaken and types of behaviours included as self-injury behaviours.

In reviewing the studies described in Table 2.1, there is no consensus with respect to the terminology used to refer to self-injurious behaviours (Ross & Heath, 2002). Self-injury seems synonymous with terms such as parasuicide, self-mutilation, deliberate self-harm, wrist-cutting, symbolic self-wounding, focal suicide, self-cutting, carving, and self-abuse. In general, examination of the definitions and operationalisations of self-injury used in empirical studies revealed two main limitations. The first issue is the use of definitions that are either detailed and complicated, or general and simplistic. The second major concern is the examination of suicidal behaviours in addition to non-lethal, self-injuring behaviours in many studies.

Table 2.1

*Prevalence of Self-Injury in Published Studies of Adolescent Self-Injury from 1989 to 2006*

Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Zlotnick, Donaldson, Spirito, & Pearlstein (1997)	85 consecutive admissions to an inpatient substance abuse treatment program at a private hospital in the USA. 57.6% female. Mean age = 36 years (SD = 10.5), range = 16 to 69 years.	A self-report questionnaire developed by the authors - Self-Injury Inventory (SII).	Burning, cutting, carving.	22% (n=19) participants with a history of trauma; and 7% (n=6) participants without a trauma history engaged in self-injury.
Lipschitz et al. (1999)	Acute adolescent inpatient unit in USA; n=71 (52.2% females); mean age of 14.8 (SD = 1.6), range = 12.1 to 18.0 years.	Not stated	Cutting, scratching, burning, slashing.	39% (n=28) (Gender distribution not reported)
Nixon, Cloutier, & Aggarwal (2002)	Adolescents admitted or participating in the inpatient and acute youth partial hospitalisation program in Canada. 130 admitted, and 50 completed questionnaires (8 excluded from analyses because of infrequent self-injury). Mean age = 15.7 years (SD = 1.5); range = 12-18 years. (Self-injury without additional suicidal ideation or a serious psychiatric disorder would not qualify for admission to the programs.)	Ottawa/Queen's Self-Injury Questionnaire. Other information not stated.	Cutting, scratching, hitting, interfering with wounds, hair-pulling, biting, head-banging, nail-biting/injuries, burning, piercing body parts, using needles, trying to break bones.	29.7% (n=27) of inpatients & 38.5% (n=15) of partial-hospitalisation patients engaged in repetitive self-injury. 84% of self-injuring sample met criteria for repetitive self-injury (others were less frequent); 85.7% (n=36) were female.

Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Schwartz, Cohen, Hoffman, & Meeks (1989)	85 adolescent females in a long-term outpatient, self-payment, therapeutic community-type of drug treatment program in USA.	Clinical outpatient samples 30-item descriptive survey of "carving" behaviours (no other information provided).	Cutting/carving, deliberate cigarette/marijuana pipe burns, habitual picking at crusted sores, drawing crude permanent ink tattoos on body.	48% (n=41)
Wiederman & Pryor (1996)	117 adolescent females who were evaluated at a university-based eating disorders outpatient clinic in USA. Mean age of 15.44 years, range = 12-17.	Diagnostic Survey for Eating Disorders – Revised measures self-injury - "Have you ever tried to physically hurt yourself (i.e., cut yourself, hit yourself with intent to hurt, burn yourself with cigarettes)?" (interview)	Not stated.	14.6% of girls with anorexia nervosa, 29.3% of girls with bulimia nervosa.
Baral, Kora, Yoksel, & Sezgin (1998)	42 female adult patients being treated at an outpatient trauma clinic in Istanbul, Turkey. Mean age = 22.5 years (SD = 5.9) range = 16 to 37 years.	Not stated.	Hitting, biting, pulling hair, cutting, nail-biting, and compulsive cosmetic surgeries.	33.3% of the sample engage in self-mutilation.
Healy, Saha, Subotsky, & Fombonne (2002)	Adolescents who presented to child and adolescent mental health services in UK and assessed within 24 hours of referral; n= 104 (73% female). Mean age = 14.5 years (SD = 1.8).	Not stated.	Not stated.	62.5% (n=65) of sample presented following an episode of self-harm, and 85% were female.
Cyr, McDuff, Wright, Theriault, & Cinq-Mars (2005)	149 adolescent females recruited from Child Protective Services in Quebec. Mean age = 14.3 years (SD = 1.5), range = 13 to 17 years.	Self-Destructive Behaviors Inventory – Self-mutilations scale (Sadowski, 1995)	Head banging, scratching, cutting, hitting, picking, self-strangulation, self-poisoning.	62.1% engaged in at least one self-harming behaviour.

Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Combined clinical inpatient and outpatient sample				
Briere & Gil (1998)	390 individuals recruited by therapists from their outpatient clinical practices & general psychiatric inpatient units in USA. Average age was 36 years, range 18-58. 78% of sample were female.	Trauma Symptom Inventory item 48: "Intentionally hurting yourself (e.g., by scratching, cutting, or burning) even though you weren't trying to commit suicide" rated on a scale of 0 (never) to 3 (often) over the last 6 months.	Not stated.	21% (n=82) indicated at least occasional self-mutilation within the previous 6 months; 88% were females.
Prison sample				
Penn et al. (2003)	289 adolescents admitted to a juvenile correction facility in USA; 19% female. Mean age = 15.8 years (SD = 1.5); range = 12 to 18 years. 78 of these were clinically referred subjects.	Functional Assessment of Self-Mutilation (FASM; Lloyd et al., 1997).	Cutting/carving, burning, self-tattooing, scraping skin, erasing skin, hitting, pulling out hair, biting, inserting objects under nails/skin, picking at wounds, and picking at skin.	30% of the clinically referred sample reported self-mutilation.
Non-Clinical adolescent samples				
Garrison, Addy et al. (1993)	Students in 6 public suburban middle and high schools in USA. N=444; age range 11 to 18 years.	K-SADS (interview)	Cutting, burning, self-hitting, interfering with wound healing, severe skin scratching, hair pulling, and bone breaking.	For interview validated self-injury: 2.46% for males, 2.79% for females; n=31 (7 males, 24 females).

Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Pearce & Martin (1993)	High school students in South Australia. N=405 (51% female). Mean age = 15 years (SD = 1); age range = 13 to 19 years.	Self-report item: "I deliberately try to hurt myself" (yes/no response).	Not stated.	9% (n=34)
Pearce & Martin (1994)	High school students in South Australia. N=307 (49% female). Mean age = 15.8 years; range = 14-17 years old.	Self-report item: "Have you ever deliberately tried to hurt yourself?" (yes/no response).	Not stated.	30% (n=91)
Martin et al. (1995)	Grade 10 and 11 high school students in South Australia. N=352.	Self-report item: "I deliberately try to hurt myself" (yes/no response referenced to the last 6 months).	Not stated.	Total prevalence was 8.9% (n=21); 9% females (n=14), 8% males (n=17).
Patton et al. (1997)	1699 Australian 15 and 16 year old high school students in Victoria (52.3% female). Mean age = 15.9 years.	"In the LAST YEAR have you ever deliberately hurt yourself or done anything that you knew might have harmed you or even killed you?" Students that responded positively were then asked to describe the nature & timing of the episode.	Cutting, piercing, burning, deliberate overdose, risk taking with cars & trains, jumping from heights, reckless overuse of illicit drugs, beating first & hands into walls or other objects.	5.1% (n=137); 4% for males, & 6.4% for females.
Ross & Heath (2002)	440 Canadian high school students from grade 7 to 11 (50% female).	One item embedded in a screening questionnaire 'How I deal with stress' measure: "Hurt myself on purpose" rated on a scale of 0 (never) to 3 (frequently). Adolescents who endorsed this item were then selected to participate in an interview.	Cutting, self-hitting, pinching, scratching, biting, burning, punching/hitting a wall.	Screening questionnaire: 20.45% (n=90). Interview verified prevalence: 13.9% (n=61).



Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Hawton, Rodham, Evans, & Weatherall (2002)	6020 high school students aged 15 and 16 years in the UK (46.6% female).	Anonymous survey. Actual measure not stated.	Self cutting, jumping from a height, ingestion of a substance in excess of prescribed dose, ingestion of recreational/ illicit drug, ingestion of non-ingestible substance/ object	13.2% (n=784) reported a lifetime prevalence. 8.6% (n=509) reported having self-harmed in the previous year. 11.2% of females & 3.2% of males reported self-harming in previous year.
Ross & Heath (2003)	440 Canadian high school students at two schools (one urban, one suburban). 50% female.	Screening self-report survey, and semi-structured interview both developed for the study.	Cutting, burning, scratching, hitting, biting, pinching.	From the survey 21.2% (n=49) of urban students and 19.6% (n=41) of the suburban students indicated self-injury. Following the interview 13% (n=30) of the urban students and 14.8% (n=31) of suburban students were classified as having self-mutilated.
Zoroglu et al. (2003)	862 high school students in Turkey (61.1% female). Mean age = 15.9 years (SD = 1.8), range = 14 to 17 years.	Self-report measure developed by authors.	Cutting, slashing, burning, pulling hair, banging and hitting body areas.	21.4% (n=175); 21.5% for females & 21.3% for males.
Rodham, Hawton, & Evans (2004)	6020 high school students aged 15 and 16 years in the UK.	Anonymous survey. Actual measure not reported. "Have you ever deliberately taken an overdose [e.g., of pills or other medication] or tried to harm yourself in some other way [such as cut yourself]?"	Self cutting, jumping from a height, ingestion of a substance in excess of prescribed dose, ingestion of recreational/ illicit drug, ingestion of non-ingestible substance/ object	6.9% reported having self-harmed in the preceding year; 220 participants had engaged in cutting, and 86 had ingested a substance.

Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Muehlenkamp & Gutierrez (2004)	390 high school students in the USA (54.9% female). Mean age = 16.3 years (SD = 1.4).	Self-Harmful Behavior Scale (SHB; Gutierrez, 1998).	Cutting, scratching, burning, hitting, punching/kicking, banging.	15.9% (n=62) reported having engaged in self-injury. 24% reported their last act occurred within the last year.
De Leo & Heller (2004)	3757 year 10 and 11 high school students in Australia (48% female).	Survey. "Have you ever deliberately taken an overdose (e.g., of pills or other medication) or tried to harm yourself in some other way (such as cut yourself)?"	Cutting, overdose, illicit drugs, self-battery, hanging, and sniffing/inhalation.	12.4% (n=464) reported a lifetime history of self-harm. 8.4% (n=317) reported having self-harmed in the previous 12 months. 11.1% of females & 1.6% of males reported self-harm.
Laye-Gindhu & Schonert-Reichl (2005)	424 high school students in Canada (55.7% female). Mean age = 15.34 years (SD = 1.06), range = 13 to 18 years.	Two self-report surveys developed for the study, 1) asked about past-year and lifetime self-harm; 2) asked about motivations underlying self-harm.	Cutting, hitting, biting, abusing pills, disordered eating, bonebreaking, falling, jumping, reckless behaviour.	42% reported self-harm ideation, with 53% of females and 28% of males reporting this. 15% (n=64) of the sample engaged in self-harm, with 48 females and 16 males.
Non-clinical college/university samples				
Favazza, DeRosear, & Conterio (1989)	245 undergraduate students in USA. Limited information supplied.	Self-Harm Behavior Survey – 178 item self-report questionnaire.	Not stated.	12% (n=21) females & 18% (n=13) males reported a history of self-injury. Total sample prevalence 13.88%.
Boudewyn & Liem (1995)	438 college students in USA (60.5% female). Average age was 24.87 years, range 16 to 65 years.	Not stated. Measured self-harm ideation and acts of self-harm (both used never, once, more than once).	Self-mutilation, substance abuse, termination of vital treatment.	20.55% (n=90) reported once or more than once. 18.25% (n=80) reported more than once.

Authors (year)	Sample descriptives	Measurement of self-injury	Self-injury behaviours	Prevalence reported
Rodriguez-Srednicki (2001)	441 female college students in the USA. Mean age = 20.6 years (SD = 1.2), range = 18 to 23 years. 39.7% of sample reported a history of childhood sexual abuse.	Survey questions asked respondents whether they had purposefully burned, cut, or otherwise mutilated themselves in the last year and, if yes, how many times.	Not stated.	4.1% reported self-mutilation; 0.9% had self-mutilated more than 10 times over the previous year.
Gratz (2001)	159 college students in the USA (68% female). Mean age = 23.2 years (SD = 7.13), range = 18 to 64 years.	Deliberate Self-Harm Inventory (DSHI; Gratz, 2001), and General Self-Harm Questionnaire (items taken from other studies).	Cutting, burning, caring, scratching, biting, rubbing, dripping acid onto skin, scrubbing, sticking objects into skin, breaking bones, banging head, punching self, interference with wound healing.	35% (n=53) reported a history of self-harm, with 15% reporting more than 10 incidents of self-harm in the past, and 9% reporting more than 100 incidents. 83% had harmed themselves more than once.
Gratz et al. (2002)	133 college students in the USA (70% female). Mean age = 22.7 years (SD = 6.2), range = 18 to 49 years.	Deliberate Self-Harm Inventory (DSHI; Gratz, 2001).	Needle sticking, cutting, scratching.	38% reported a history of self-harm; 18% had harmed themselves more than 10 times; and 10% reported having harmed themselves more than 100 times.

In addition, many definitions of self-injury have resulted in challenges when attempting to synthesise the existing literature. For example, self-injury encompasses a broad continuum of behaviours that occur in community and clinical samples (Yates, 2004). On one end of the spectrum are activities to beautify the body (e.g., tattooing, piercing), and on the other end are the socially unacceptable non-suicidal self-injurious behaviours (e.g., cutting, burning, scratching) (Osuch, Noll, & Putnam, 1999). The broad continuum of self-injury is partly determined by social norms, the individual's intent, the psychological state accompanying the act, and how the act affects both the body and the self (Connors, 1996). Favazza (1998) suggests that two definitional issues are of primary importance for the research of self-injury. First, a more precise definition of self-injury must be consistently used. Second, self-injury must be differentiated from suicidal behaviours for a more complete understanding of the nature of the individuals who engage in non-lethal, self-injurious behaviours.

The following section provides a review of the terms that have been used in self-injury research, firstly to demonstrate the kaleidoscope of terms used, and secondly to illustrate the difficulties that occur when attempting to synthesise the literature on self-injury. This discussion highlights similarities and differences between existing terms and definitions. Additionally, the review combines both theoretical and research operationalisations of self-injury. To provide consistent terminology and to aid readability throughout this section, the term *self-injury* is used.

### *Overview of Self-Injury Definitions*

As suggested above, many definitions of self-injuring behaviour have been proposed. As will become evident these definitions vary in terms of their consideration of damage, intent, and purposefulness/deliberateness. One of the earliest definitions was devised by Kreitman (1977, cited in Pillay & Wassenaar, 1997) who defined *parasuicide* as a non-fatal act in which the individual deliberately causes self-injury or ingests a substance in excess of a prescribed dosage. This definition seems to incorporate a possibility of addictive behaviours (e.g., alcohol or prescription drug abuse) within the realm of self-injury. Later, Pillay and Wassenaar (1997) viewed *parasuicide* as all self-harm behaviours (e.g., overdose, ingestion of poisons, self-laceration), but excluded any consideration of suicidal intent. Other researchers considered the intent of the behaviour as important. Winchel and Stanley (1991) defined *self-injurious behaviours* as acts of deliberate harm to one's own body which cause tissue damage, but which do not entail conscious suicidal intent. Nixon et al. (2002)

similarly defined *self-injurious behaviour*. Thus researchers have begun to separate self-injury from acts in which the individual's intent is to end their life.

*Self-mutilation* is one of the most frequently utilised alternative terms for self-injury. Similar to Winchel and Stanley's (1991) and Nixon et al.'s (2002) definition of *self-injurious behaviour* cited above, *self-mutilation* has been operationalised as purposefully damaging one's body without conscious intent to die (Feldman, 1988; Lipschitz et al., 1999). Parallel definitions of *self-mutilation* have been used by Favazza (1989), Rosen et al. (1990), Ross and Heath (2002), and Zlotnick et al. (1997).

In an earlier review of the self-mutilation literature Suyemoto (1998) proposed a theoretical definition intended to fit the majority of the research. Suyemoto defined *self-mutilation* as a direct, socially unacceptable, repetitive behaviour that causes minor to moderate physical injury, yet is not a suicide attempt, a response to a need for self-stimulation, or a stereotypical behaviour characteristic of intellectual impairment or autism. While this definition appears to offer a reasonable degree of precision that might be used to guide constructive research on self-mutilation, researchers have frequently abandoned such preciseness when conducting empirical study of self-injury. For example, some researchers have been overly inclusive when defining self-injury (e.g., Goddard, Subotsky, & Fombonne, 1996; Hawton et al., 2000; Tulloch et al., 1997). Goddard et al. (1996) defined *deliberate self-harm* as any deliberate non-habitual act that causes self-injury *or may have potential to do so* (emphasis added). This definition provides the scope for a wide range of behaviours to be viewed similarly (e.g., attempted or completed suicide, non-lethal self-injuring behaviours, smoking, recklessness, unprotected sex). Similarly, Rubenstein, Halton, Kasten, Rubin, and Stechler (1998) operationalised *suicidality* in their research as self-destructive behaviour that is engaged in with the intention of hurting or killing oneself. This definition clearly combines two distinct behaviours. Martin, Clarke, and Pearce (1993) also grouped these two behaviours together. Thus these researchers have failed to focus specifically on self-injurious behaviours, as opposed to suicidal behaviours, and have not considered the individual's intention for the behaviour as important to distinguish.

Unfortunately, researchers sometimes neither define self-injury adequately, nor identify the behaviours included in the research. The research conducted by Edgardh and Ormstad (2000) is one such example, whereby they discuss the association of "acts of self-harm" (p. 315) with sexual abuse in adolescents, without explicitly identifying what "acts of self harm" were. Other researchers have attempted to define and assess self-injury utilising only one, very general question, such as "I deliberately try to hurt

myself” (e.g., Martin et al., 1995; Pearce & Martin, 1993). This results in researchers failing to make the behaviours explicit. Such operationalisations seem insufficient as comprehensive assessments of self-injury and limit the conclusions that can be drawn from research findings.

Some researchers’ operationalisations of self-injury have been more specific. Osuch et al. (1999) asked two questions (i.e., “have you ever done things to intentionally injure your body without intending to kill yourself?” and “have you ever found that you had a physical injury that you could not account for but which could not have been done by anyone except yourself?”) and also stated the behaviours that were reported by the participants. This research strategy made it clear which types of self-injury were included. Wiederman and Pryor (1996) asked only one question relating to self-injury, yet clearly stated for the participants the range of behaviours included within the construct (i.e., “Have you ever tried to physically hurt yourself (i.e., cut yourself, hit yourself with intent to hurt, burn yourself with cigarettes)?”). Thus, both the research participants and consumers of the empirical literature were made aware of the specific behaviours under examination.

Similarly, both Garrison, Addy et al. (1993) and McKeown et al. (1998) explicitly stated the acts included in their conceptualisation of self-injury. Both research groups used the explicit definition of *non-suicidal physically self-damaging acts* from the Schedule for Affective Disorders and Schizophrenia in School Age Children – Present Episode Version (K-SADS; Chambers et al., 1985). The K-SADS definition is as follows:

Self-mutilation or other acts done without intent of killing oneself, and specified behaviours such as skin cutting, skin burning, self-hitting, interfering with wound healing, severe skin scratching, hair pulling, and bone breaking (Chambers et al., 1985, p. 343).

Winchel and Stanley (1991) listed common forms of self-injury (i.e., cutting and/or burning the skin, banging the head and limbs, picking at wounds, and chewing fingers) in their research. Although these studies have improved on the methods by clarifying self-injury’s conceptualisation and operationalisation, the predominant use of imprecise definitions and lack of complete reporting in research reports often provides an unfocused microscope through which researchers are left with limited understanding of the nature of self-injury.

In sum, although some researchers have adequately specified their operational criteria for self-injury, most often the behaviours under examination are not stated

explicitly. Given the inadequate definitions of self-injury employed in past research, and the likely unreliable classification of such behaviours, the slow progress toward achieving an understanding of individuals who engage in self-injury cannot be surprising.

### *Self-Injury Compared to Suicide Attempts*

Early perspectives on self-injury were based in psychodynamic theory, and considered self-injury as a symbolic, suicidal gesture (Menninger, 1935). While there continues to be some researchers who entwine self-injury with suicidal gestures, other researchers propose that self-injury is distinct from suicidal behaviours (Favazza, 1998; Ross & McKay, 1979; Simpson & Porter, 1981; Suyemoto, 1998). On the other hand, Zlotnick and colleagues (1997) argue that suicidal behaviour may not be distinct from self-injury, but instead forms a continuum of self-inflicted behaviours of bodily harm of increasing severity and lethality. Favazza (1998) disagrees with Zlotnick and states that self-injury is understood as a morbid form of self-help that is antithetical to suicide. However, even among current theorists, the distinction between self-injury and suicidality is not absolute, with Briere and Gil (1998) maintaining that the presence of self-injury does not necessarily indicate the absence of suicidality.

As Table 2.1 indicated, in general in most of the studies into self-injury in the last two decades, self-injury is recognised as distinct from suicide attempts and self-poisoning (Farberow, 1980; Safer, 1997; Schwartz et al., 1989), in regards to intent, physical damage, frequency, prognosis and methods (Walsh & Rosen, 1988). Walsh and Rosen (1988) state that self-poisoning results in harm that is uncertain, unpredictable, ambiguous, basically invisible, and does not result in visible bodily disfigurement. This distinction between some self-injury behaviours and self-poisoning may be more theoretical and derived by researchers than the individuals actually engaging in the behaviours.

Yet there are complications when separating self-injury from suicidal attempts. Some individuals who have self-injured do later attempt to take their lives. Additionally, some individuals who self-injure also report suicidal ideation (Jones, Congin, Stevenson, Straus, & Frei, 1979; Pattison & Kahan, 1983; Walsh & Rosen, 1988). Briere and Gil (1998) caution that some acts that initially appear to involve non-lethal self-injury may actually be *dry runs* at suicide. Studies of clinical and non-clinical adolescents have shown that those who attempt suicide are significantly more likely to report having self-injured than adolescents who do not attempt suicide (Garrison,

McKeown et al., 1993; Lipschitz et al., 1999; Simpson & Porter, 1981), and self-injurers have a significantly increased risk for completed suicide (Walsh & Rosen, 1988). This indicates that while it is best to view self-injury and suicide attempts as separate activities, the two can co-occur.

Three criteria appear to importantly capture the distinction between self-injury and suicidal behaviours in the empirical literature: (a) lethality, (b) repetition, and (c) intention (Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boerfers, 2001). Self-injury generally entails repetitive, low-lethality behaviours performed by individuals who do not intend to die (Guertin et al., 2001). In addition, individuals who self-injure distinguish it from suicide attempts, both cognitively and affectively (Allen, 1995; Simpson & Porter, 1981). Favazza (1998) stated a clinically useful way to distinguish self-injury from suicide attempts, “a person who truly attempts suicide seeks to end all feelings whereas a person who self-mutilates seeks to feel better” (p. 262). Additionally, Strong (1998) noted the distinction of self-injury and suicide attempts articulated by a female adolescent who self-injures:

There is no hazy line...If I'm suicidal I want to die, I have lost all hope.  
When I'm self-injuring, I want to relieve emotional pain and keep on living.  
Suicide is a permanent exit. Self-injury helps me get through the moment  
(Strong, 1998; p. 32).

Thus, although some individuals who self-injure may also attempt suicide at some time, they appear able to differentiate between the two acts (at least in retrospect).

Although self-injury and suicide attempts are positively associated, the precursors and accompanying motivation and cognitions may differentiate these behaviours. When measuring self-injury very few researchers appear to have assessed motivation and thoughts surrounding the behaviour. It is not sufficient to measure self-injury as a behaviour, but rather it is necessary to take into account thought and affect. The current studies utilised interviews and a diary study to be able to explore individuals' associated motivation, thoughts, and affect. Also the current studies distinguished between self-injury ideation and self-injury behaviours.

### *Types of Self-Injury*

It is important to understand which behaviours previous researchers have conceptualised as self-injurious. In their study of self-injury prevalence, correlates and functions, Briere and Gil (1998) describe the most extensive variety of self-injurious behaviours in adults. They identified cutting arms or legs; biting the inside of mouth



and/or other body parts; scratching with and without drawing blood; punching self or walls; biting nails or cuticles and drawing blood; taking scalding showers or baths; pinching; burning; pulling out head, eyebrow or eyelash; stabbing; cutting genitals; very hot enemas; and cutting off body parts as being the most common self injury behaviours. More recently, others (Guertin et al., 2001) have added behaviours to this list (e.g., carving on the skin, scraping skin to draw blood, and erasing to draw blood). It may be speculated that researchers have in fact examined many of the same behaviours yet used different terms for the behaviours. Paradoxically, as the number of self-injuring behaviours included in a list increases, the operational definition of each behaviour must become more precise to reliably discriminate each type of self-injury behaviour from similar behaviours.

In their sample of self-referred female self-injurers, Favazza & Conterio, (1989) reported multiple forms of self-injury with the most common being skin-cutting (72%) and other types including skin-burning (35%), self-hitting (30%), interference with wound healing (22%), severe skin scratching (22%), hair-pulling (10%), and bone-breaking (8%). However, the predominant form of self-injury appears to be cutting and/or scratching (Bongar, Peterson, Golann, & Harridan, 1990; Langbehn & Pfohl, 1993; Lipschitz et al., 1999; Nixon et al., 2002). Interestingly, previous research findings highlight that only female adolescents, and not males, view ingesting pills and eating disordered behaviour as self-injurious (Laye-Gindhu & Schonert-Reichl, 2005).

Minimal research has examined self-injury ideation (distinct from suicidal ideation) and urges to self-injure. In one such study, the majority of a clinical sample of self-injuring adolescents reported almost daily urges to self-injure (Nixon et al., 2002). These researchers noted that urges to self-injure did not always result in a self-injury behaviour, with acts of self-injury occurring most frequently “at least once a week” yet urges to self injury being much more frequent (Nixon et al., 2002, p. 1336).

### *Gender Differences in Self-Injury*

Most of the early research into gender differences in self injury indicates that female adolescents and young female adults engage in self-injury more often than males, regardless of the sampling strategy or the method of data collection employed (De Leo & Heller, 2004; Garrison, Addy et al., 1993; Groholt et al., 2000; Hawton, 1986; Lipschitz et al., 1999; Ross & Heath, 2002; Schmidtke, Bille-Brahe, DeLeo, & Kerkhof, 1996). The ratio has been estimated as 1.4 females to every one male (Diekstra, Kienhorst, & De Wilde, 1995; Hawton, Fagg, Simkin, Bale, & Bond, 1997;

Hurry & Storey, 2000). Other researchers have reported that between 75% and 80% of self-injuring adolescents are female (Groholt et al., 2000; Hawton et al., 2000; McLaughlin et al., 1996). Even in individuals younger than fifteen years of age, a higher proportion of females than males have been found to engage in self-injury (Hawton & Fagg, 1992; Hurry & Storey, 2000; Kerfoot, 2000; Patton et al., 1997).

However, two recent community studies suggest that prevalence rates are similar for males and females. For example, Zoroglu et al. (2003) found very similar rates of self-injury in their sample of high school students in Turkey with 21.5% of females and 21.3% of males reporting that they engaged in self-injurious behaviours. Gratz et al. (2002) also reported that self-harm was not significantly associated with gender. Adding even more confusion, three studies have suggested that males, rather than females, are more likely to engage in self-injury. Tulloch et al. (1994) found that 63% of adolescents presenting to an Australian hospital with self-injury were male, and Martin et al. (1995) reported that 55% of Australian adolescents who self-injured were male. Additionally, Favazza et al. (1989) reported that 18% of males ( $n = 13$ ) and 12% of females ( $n = 21$ ) in their university sample reported a history of self-injury (i.e., cutting, burning, or carving at least once). It is unclear why these differences occur, given that similar self-injury behaviours have been studied. In line with the larger body of research findings, it is expected that more females in both samples (community and clinical) will report having engaged in self-injury.

#### *Prevalence of Self-injury in Adolescents and Young Adults*

As mentioned above self-injury appears to occur most prevalently in adolescents and young adults. Kumar et al. (2004) found that adolescent inpatients reported the average age at which they started to cut themselves was 13.5 years old. However, in reviewing the research not only are there substantial inconsistencies in definitions of self-injury there is also a range of estimates of prevalence of self-injurious behaviours. What has been more consistent, however, is the reliance on clinical populations. Studies of clinical populations do not represent the total population of individuals who self-injure, as many self-injuring individuals have no contact with medical, psychological, or other sources of care (Hurry, 2000). Such a statement is supported by research conducted by Diekstra (1982) who found that three out of four cases of self-injury do not result in contact with helping services (cited in Diekstra, 1989).

The research examining the prevalence of self-injury in adolescents can be grouped into three main categories: (1) studies that have examined adolescents admitted

to emergency rooms, (2) studies that have examined adolescent psychiatric inpatients, and (3) studies that have sampled adolescents from the community. Table 2.1 provides a summary of the published empirical studies to date noting the prevalence rates of self-injury obtained in studies, the corresponding measurement of self-injury, and the types of self-injury behaviours reported.

Minimal research is available that examines admissions to emergency departments and such research has primarily been conducted in Europe and the United Kingdom. The prevalence of adolescent and young adult self-injury in hospital settings in Europe and the United Kingdom has been reported to range from approximately 400 per 100,000 (or .04%; Hawton et al., 1997) to 800 per 100,000 (or .08%; Hurry & Storey, 2000). The majority of these presentations to emergency departments are for substance ingestion or overdose.

Other research has relied upon samples of psychiatric inpatients to estimate prevalence of self-injury, and as might be expected a much higher prevalence of self-injury has been documented among these individuals. Studies in the United States have found that 15% to 63% of young psychiatric inpatients have engaged in self-injury (Healy et al., 2002; Lipschitz et al., 1999; Nixon et al., 2002; Schwartz et al., 1989; Wiederman & Pryor, 1996). These rates appear to vary depending upon the mode of assessment (i.e., self-report measure or validated in interview) and type of recruitment locations (i.e., outpatient versus inpatient care). Overall, this information highlights the high number of adolescents engaging in self-injury in clinical samples (Nixon et al., 2002).

The prevalence of self-injury has also been obtained from samples of adolescents in the community. Overall, the rate of self-injury in community samples of adolescents is quite variable. Using a community-based, non-clinical sample, Diekstra et al. (1995) estimated that the annual incidence of deliberate self-injury in adolescents ranges between 2% and 20%. The most recent study identified a 15% prevalence rate of self-injury behaviour in a sample of Canadian high school students, however this included eating disorders and reckless behaviours (which were not described in the study) (Laye-Gindhu & Schonert-Reichl, 2005). Also the same study found that 42% of adolescents had thought about self-injury (Laye-Gindhu & Schonert-Reichl, 2005). A second recent study included a survey of Canadian youth in high schools that was followed with a more intensive screening of those who indicated self-injury (1 item) on a coping measure. Using the combination of the two assessment methods resulted in an overall prevalence of 14% (Ross & Heath, 2002). The prevalence of self-injury was

higher (i.e., 21%) when only the one self-injury item in the coping measure was used to identify young people who self-injured (Ross & Heath, 2002). Additional information was provided regarding the frequency with which adolescent self-injurers engage in such acts, with 13% of adolescents who self-injured doing so more than once a day, 28% a couple of times a week, 20% a couple of times a month, 20% episodically, and 18% only once. Thus, the majority of adolescents who had engaged in self-injuring behaviours did so frequently. This study also indicated that a significant proportion of adolescents disclose their self-injuring behaviour either on questionnaires or in face-to-face interviews.

Rates of self-injury in Australia tend to be fairly similar to the most recent prevalence studies conducted in Canada and Turkey (Laye-Gindhu & Schonert-Reichl, 2005; Ross & Heath, 2003, Zoroglu et al., 2003), but are larger than those obtained by Garrison et al. (2003) in the USA. In a series of studies of South Australian adolescents, the prevalence of self-injury ranged from 9% to 30% (Martin et al., 1993; Martin et al., 1995; Pearce & Martin, 1993, 1994). The possibly inflated prevalence (i.e., 30%) reported by Pearce and Martin (1994) may be because they inquired about *trying to self-injure*, which may be interpreted differently to actually engaging in such behaviours.

The discrepancies in the prevalence among the other three Australian studies are somewhat surprising given the very similar measurement of self-injury; all used similar assessment questions, and two (Martin et al., 1993; Pearce & Martin, 1993) did not report specifying a time reference. Furthermore, the higher prevalence rates identified by Martin and colleagues (1993) may have resulted from the study combining self-injury with suicide attempts. An additional study of Australian high school students reported that the 12-month incidence of deliberate self-injury was 5% (Patton et al., 1997). However, Patton et al.'s (1997) prevalence rates most probably also include suicidal behaviours given the question asked, "In the LAST YEAR have you ever deliberately hurt yourself or done anything that you knew might have harmed you or even killed you?". A prevalence rate of 6.2% was reported by De Leo and Heller (2004) for the previous twelve months in year 10 and 11 high school students on the Gold Coast, Queensland, Australia. Thus the information obtained from these studies may be compromised by the lack of distinction between self-injury and suicidal behaviour.

Overall, rates of self-injury differ when comparing clinical to community samples. In fact, an additional set of empirical studies that were conducted by Briere & Gil (1998) deserves mention, because rates of self-injury in clinical versus community samples were compared after assessment with same measure. Briere and Gil (1998)

found that 21% ( $n = 82$ ) of a clinical sample, and 4% ( $n = 33$ ) of a community sample (age range 19 to 90 years) indicated at least occasional self-injury within the past six months.

In sum, there are vast discrepancies in the prevalence rates of self-injury that have been reported. The different prevalence rates may be a function of: (a) study site (i.e., country), (b) source of study participants (i.e., hospitals, outpatient services, community samples), (c) method of data collection (i.e., anonymous survey, confidential questionnaire, case-note audit, interview), (d) individual differences in willingness to disclose self-injury, and (e) the measure of self-injury used. General knowledge of self-injury may lead to increased willingness to divulge the behaviour, however it may also reveal an actual increase in prevalence (Whitlock et al., 2006).

The current series of two studies included a sample of non-clinical university students, as well as a sample of adolescents in contact with an outpatient clinical service. These two groups of participants were recruited to overcome some of the sampling limitations of past research. General screening items were first used to identify individuals who engaged in self-injury and those who had thoughts of self-injury. These questions were followed with more intensive data collection of a range of self-injurious behaviours and thoughts. Diary forms also were completed by the clinical sample to collect similar information daily for a period of seven days. A consistent operationalisation of self-injury was used in both studies. The prevalence of self-injury in the current studies was expected to be approximately 15% of adolescents in the community sample and 40% of adolescents attending an outpatient mental health clinic. In addition it was expected that 40% of adolescents would report self-injury thoughts in the community sample, but it was unclear as to what proportion of the clinical sample would report thoughts of self-injury.

#### Developmental Psychopathology as a Theoretical Framework

The developmental psychopathology theoretical perspective (Sroufe & Rutter, 1984) and associated propositions provide conceptual guidance for understanding self-injury. Propositions include: (1) the necessity of understanding normal development to better understand maladaptive behaviour, (2) the notion that individuals develop within multiple environments, and (3) the possibility of a variety of developmental pathways leading to a similar outcome.

*Attention to Normative Development and the Development of Psychopathology*

A basic tenet of the developmental psychopathology perspective is that the knowledge of normal development is necessary to comprehend psychopathology, and the converse is true, also (Cicchetti, 1990). Theorists describing this perspective have proposed that to understand the development of a problem or psychopathology, normative development must also be understood. Hence, developmental psychopathology propositions have been used to guide investigations of both adaptive and maladaptive developmental pathways, and research designed within a developmental psychopathology framework has two broad functions (Cicchetti & Toth, 1995; Rutter, 1996; Sameroff, 2000; Sroufe, 1990). First, research should further the knowledge of psychopathology pertaining to a specific life stage. Second, research should enhance understanding of more general developmental processes. For the current research project, this highlighted the need to understand the developmental processes that contribute to an individual's placement along a continuum of normal to pathological when studying self-injury, and required a model that appreciates the connection between normal and disordered developmental pathways (Yates, 2004). Thus while the current research project primarily focused on adolescent self-injury, information obtained also contributed to the understanding of, amongst other aspects, affect regulation and coping in a general community sample of adolescents who do and do not self-injure.

*Attention to Individual Development within Multiple Environments*

The developmental psychopathology perspective also acknowledges the continuous interplay between individuals and their environment. This is similar to Bronfenbrenner's (1979) ecological model, which posited that development is influenced by the many levels of contexts in which development takes place. Environments influence individual development and functioning, but individuals are also active in their environments (e.g., selecting their experiences, and changing and/or interpreting their environments). Furthermore, individuals influence their environment, rather than simply being passive recipients of environmental forces (Cicchetti & Rogosch, 2002; Sameroff, 1975). As will become evident when later discussed, the current research project did not explicitly examine the social context of development, but rather implicitly considered the importance of the social context in which the

individual develops, in terms of major life events (e.g., parental divorce), the occurrence of maltreatment, and daily hassles.

### *Development is Multiply Determined*

Another central aspect of the developmental psychopathology perspective is the focus on the multiple and interacting determinants of developmental pathways and outcome. This proposition challenges researchers to move beyond simply identifying isolated constructs, to understanding how constructs from different domains (i.e., biology, psychology) of the individual may interact and be embedded within a multilevel social ecology (Cicchetti & Toth, 1998). According to the developmental psychopathology framework, prediction of psychopathology based on any single construct is not possible (Cicchetti, 1990). Given this perspective, a number of constructs (i.e., affect, affect regulation, coping, maltreatment, stress reactivity, stressful life events, daily hassles) were examined in relation to self-injury in the current thesis. The rationale for the selection of these constructs is discussed later.

Additionally, the framework also aims to identify both risk and protective factors. Factors associated with an increased chance of a problem outcome are referred to as *risk factors*. Factors associated with a decreased chance of a problem outcome are referred to as *protective factors*. Research should ideally focus on risk and protective factors, as well as the history of their dynamic transactions and how they have influenced the evolving individual over the course of development (Cicchetti & Rogosch, 2002).

Two different frameworks have been identified to conceptualise risk factors. First, many research findings have identified the importance of differentiating between *risk indicators* (i.e., features that index an increased risk but do not themselves reflect the processes that mediate that risk), and *risk mechanisms* (i.e., features that explain the process of risk) (Rutter, 2000). Second, a distinction has been drawn between distal and proximal risk factors, where proximal risk processes are fairly directly involved in the mediation of the risk for psychopathology (e.g., poor parenting, family discord). Distal risk factors may not themselves directly incur a risk in psychopathology but nevertheless may have indirect influences on development (e.g., poverty) (Rutter, 2000). The current research project primarily focused on proximal risk factors with the aim of identifying factors that were more directly predictive of self-injury in adolescents.

## Relevant Theories of Affect and Affect Regulation, Self-Injury, Maltreatment, Stress and Coping

### *Affect Regulation*

Several psychodynamic theoretical perspectives on self-injury propose that affect regulation, including the expression and control of affect, is one mechanism that accounts for the links between early childhood experiences, subsequent stressful experiences, and self-injury (Suyemoto & MacDonald, 1995). Some theorists (Darche, 1990; Raine, 1982) propose an expression model; self-injury is an expression of overwhelming and internally intolerable affect and redirects anger from others onto the self. Other theorists have proposed a control model (Raine, 1982); self-injury is an attempt to regain control by channelling the anger at the abandoning object against the self, or by enacting the anger that is perceived to be coming from the object and resulting in abandonment. Thus, theorists suggest that the function of self-injury is to regulate affect through a balance between control and expression. Friedman and colleagues (1972) reported on the psychoanalytic treatment of ten adolescents and appear to provide some evidence of the process of affect regulation. However, it is likely that these models have not received empirical support because of difficulties in operationalising and measuring the constructs relating to aspects of control and expression of affect (Nock & Prinstein, 2005). Furthermore, these models do not identify or suggest the aspects of difficulty with affect regulation in the first instance that result in individuals using self-injury to regulate their affect; for example maintaining comfortable emotions whilst engaging in strategies to change uncomfortable emotions.

Additionally, many others have proposed theories congruent with the view that self-injury is related to difficulties with affect regulation (Allen, 1995; Brennum, 1984; Favazza & Favazza, 1987; Friedman et al., 1972; Rosen et al., 1990). Focusing on the developmental origins of self-injury, Yates (2004) describes two ways in which maltreatment may result in a deviation in affect development, which leads to maladaptive self-regulatory strategies (including self-injury). First, maltreatment results in the child being hyper-responsive to emotional cues, particularly those that signal threat or danger, and the individual is likely to experience more marked shifts in arousal levels than non-maltreatment peers (Cummings, Pellegrini, Notarius, & Cummings, 1989; Eisenberg, Fabes, & Guthrie, 1997). Second, a history of insensitive caregiving (i.e., neglect, abuse) will weaken the child's foundation of emotional competence,



meaning that he/she is less able to self-soothe in response to the arousal fluctuations. The current studies focused on the aspect of hyper-responsiveness by examining affect and neuroticism, and the aspect of insensitive caregiving by examining a history of maltreatment.

### *Traumagenic Model of Self-Injury*

Yates' (2004) traumagenic model of self-injury provided additional guidance for the current research studies. Yates drew from empirical and theoretical literature with a special emphasis on the organisational developmental theory (Sroufe et al., 1999), to propose a traumagenic hypothesis for self-injury, which stated that maltreatment impacts negatively on normative developmental processes in a number of ways, including the emerging sense of self, affect regulation, and relational patterns. From this perspective self-injury emerges from trauma-induced disruptions and is viewed as a "compensatory regulatory and relational strategy" (Yates, 2004, p. 54) that assists the individual to facilitate negotiation of developmental challenges. Thus, self-injury may be considered "an adaptive function for the developmental vulnerable individual" (Yates, 2004, p. 52). In particular, the trauma experience is viewed to impact negatively on levels of competence (i.e., motivation, attitudinal, instrumental, emotional, and/or relational) that typify normative development. Self-injury is therefore considered to be "an effective tool for achieving connectedness, maintaining and protecting the integrity of the self, and processing and regulating affective experience" (Yates, 2004, p. 58).

In a related and more classic perspective, Shapiro (1987) postulated that self-destructive behaviours used by the abuse victim "act as the mechanism by which she copes with the legacy of emotional pain and the unconscious self-blame created by the incest trauma" (p. 47). Thus, self-injury may be a coping or self-regulatory mechanism that occurs when experiencing emotional reactions to stress or when extreme emotions are experienced. This difficulty regulating emotions or experiencing emotions may have partly emerged from a past history of traumatic experiences and the attachment relationship difficulties that often co-occur with the experience of child maltreatment. Theorists have hypothesised that difficulties with self-regulation found among individuals with a history of childhood abuse lead to disturbances in the sense of self, poorly modulated affect and impulse control, and insecurity in relationships (Cole & Putman, 1992). The current studies were founded in these perspectives and focused on each of these potential mechanisms of self-injury, including self-regulation, stress

experiences, coping, and stress reactivity. In the following sections, these mechanisms are more fully discussed in relation to self-injury among adolescents.

#### Individual and Environmental System “Deficits” as Mechanisms of Self-Injury

##### *Affect Regulation and Self-Injury: Definitions and Implications for the Development of Psychopathology*

One of the most commonly proposed proximal explanations for self-injury is difficulty with affect regulation (e.g., Briere & Gil, 1998; Suyemoto, 1994, 1998). Affect regulation has been defined as the intra- and extra-organismic factors by which affect arousal is redirected, controlled, modulated, and modified to enable an individual to function adaptively in emotionally arousing situations (Cicchetti, Ganiban, & Barnett, 1991; Thompson, 1994). Affect has been distinguished from emotion as being less clearly related to stimulus, longer-lasting, and more cognitively complex (Goldsmith, 1994). In addition, Gross (1998) states that affect is used to refer to the behavioural components of emotion. Mood is also differed to emotion in that mood is the “pervasive and sustained ‘emotional climate’, and emotions are ‘fluctuating changes in emotional weather’” (American Psychiatric Association, APA, 1994, p. 763).

Gross (1998) views affect regulation as comprising of coping, emotion regulation, mood regulation, and defenses, whereas mood regulation is conceived as being more focused on altering emotion experience. Gross (1999b) conceptualises one component of affect regulation, that being emotion regulation as “the ways in which individuals influence which emotions they have, when they have them, and how they experience and express these emotions” (p. 557). Emotion regulation is viewed as involving behavioural, experiential, and/or physiological response changes. Emotion regulation involves both decreasing and increasing negative and positive emotions (Langston, 1994). Additionally, Southam-Gerow and Kendall (2002) distinguish between two aspects of emotion regulation, that being emotion expression and emotion understanding. In addition Davies, Stankov, and Roberts (1998) stated, “regulation of emotion in the self refers to the meta-experience of mood, or monitoring, evaluating, and acting to change one’s mood” (p. 991). A number of constructs may overlap with emotion regulation. These include, but are not limited to, coping, emotional control, mood regulation, repression, rumination, monitoring, distraction, sensation seeking, destructive thinking, impulsivity, affect regulation, ambivalence over emotional expressivity, ego control, emotional intelligence, and alexithymia (Gross, 1998, 1999b).

An example of how these constructs overlap with emotion regulation is that rumination is “effortful, controlled, and conscious, and seems to be aimed at reducing depressive feelings, although its actual effect is usually the opposite” (Gross, 1999b, p. 562). Thus previous literature relating to emotion regulation can be theoretically extended to the realm of affect regulation given the potential overlap between the two related constructs, as well as the theoretical perspective that emotion regulation is one of the components of affect regulation (Gross, 1998).

For the current studies, affect regulation was defined as a process that includes the ability to respond emotionally and to attune one’s emotion experience and expression to contextual demands (Cole, Michel, & Teti, 1994). Emotion regulation has been defined as including the processes of monitoring, evaluating, and modifying the intensity, duration, and latency of emotional reactions (Cicchetti et al., 1991; Eisenberg, 2002; Eisenberg & Spinrad, 2004; Kopp, 1989; Thompson, 1994). Three aspects of affect regulation, namely attention to feelings, clarity of feelings, and feeling repair (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995) were examined in the current studies. These aspects are considered as important separate yet inter-related components of affect regulation. Larsen (2000) also proposed a model of mood regulation that incorporates components similar to these proposed by Salovey et al. (1995).

For the individual to function optimally, emotional responses must be flexible, responsive to the situation, and adaptable to changing conditions. Cole, Martin, and Dennis (2004) outline the importance of the construct of emotion regulation:

“The value of the concept of emotion regulation is as a tool to understand how emotions organise attention and activity and facilitate strategic, persistent, or powerful actions to overcome obstacles, solve problems, and maintain well-being at the same time as they may impair reasoning and planning, complicate and compromise interpersonal interactions and relationships, and endanger health.....it is not the valence of an emotion but the complex processes by which emotions relate to cognition and behaviour and ultimately developmental outcomes that must be conceptualised and studied” (p. 318).

Importantly, the success of the behaviour is not the defining feature of attempts at emotion regulation and some forms of emotion regulation may even be maladaptive in either the short or long term (Cole et al., 2004; Eisenberg & Spinrad, 2004).

Difficulty with emotion or affect regulation is an important and central theme of developmental psychopathology (Cole et al., 1994; Southam-Gerow & Kendall, 2002).

Difficulties with emotion or affect regulation are not only the lack of regulation, but can also include regulatory behaviours that are operating dysfunctionally by interfering or impairing productive and appropriate functioning (Cole et al., 1994). Emotion dysregulation is believed to involve difficulty in two aspects: first, modulating emotion experience and expression in response to contextual demands, and second, controlling the influence of emotional arousal on the organisation and quality of thoughts, actions, and interactions. As highlighted by Underwood (1997) difficulty with emotion regulation can result as it involves trying to institute order, rules, and fine-tuning when individuals are least well equipped to control their subjective experience and expressive behaviour because of the intensity of their emotions.

The experiencing of emotions is also an important component of affect regulation. A two-dimensional model of affect structure is frequently used in clinical research, whereby affect is assessed in terms of positive affect and negative affect (e.g., Huebner & Dew, 1995). In broad consideration of emotions, positive affect has been found to be the strongest predictor of life satisfaction (Palmer, Donaldson, & Stough, 2002), associated with extraversion (Wilson, Gullone, & Moss, 1998), and internal locus of control and positive self-esteem (Huebner & Dew, 1995). Negative affect has been significantly related to neuroticism (Wilson et al., 1998) and daily hassles (Kanner, Coyne, Schaefer, & Lazarus, 1981). The way in which individuals manage states of prolonged negative affect or arousal is considered to be the most important aspect of affect regulation linked to the development of psychopathology (Bradley, 2000).

From this perspective, the inability to regulate affect may increase the risk of self-destructive behaviours that actually are attempts at managing affect (van der Kolk & Fisler, 1994). It is also possible that adolescents who self-injure experience problems with the understanding of and expression of affect. The published literature postulates that self-injury assists with the regulation of affect or emotion as it reduces anxiety, depression, tension, loneliness, dissociation, and feelings of emptiness and guilt (Favazza & Conterio, 1989; Kemperman, Russ, & Shearin, 1997; Rosenthal, Rinzler, Wallsh, & Klausner, 1972; Walsh & Rosen, 1988; Wilkens & Coid, 1991).

Although there have been few empirical studies, investigations of therapists and clients in clinical settings provide some evidence that self-injury may partially be an outcome of affect dysregulation including either difficulties with expression or control of affect. Therapists tend to identify self-injury as a coping mechanism used when individuals have not been able to regulate their affect (Suyemoto & McDonald, 1995). Addressing the *process* of affect regulation, through the use of retrospective reports,

researchers have found a significant decrease in ratings of negative affect and a significant increase in positive affect following self-injury in female adolescents with borderline personality disorder (Kemperman et al., 1997) and in a sample of self-referred females (Briere & Gil, 1998). The majority of female adolescents felt depressed, angry, and/or lonely immediately before self-injuring (Schwartz et al., 1989). Surprisingly, 41% of female adolescents reported feeling unrelieved after self-injuring and often felt compelled to continue (Schwartz et al., 1989).

Chapman, Specht and Cellucci (2005) hypothesised self-injury as “an emotion regulation strategy negatively reinforced through the reduction or avoidance of aversive emotions” (p. 389). Elaborating on this, the biosocial theory has as primary importance “experiential avoidance, or behaviour that has as its function the avoidance or escape of unwanted emotions, thoughts, or somatic sensations” (Chapman et al., 2005, p. 389). Nock and Prinstein (2004) recently applied a functional approach to the assessment of self-mutilative behaviour (SMB) among adolescent psychiatric inpatients, and hypothesised that SMB is performed because of automatically reinforcing (i.e., reinforced by oneself; e.g., emotion regulation) and/or socially reinforcing (i.e., reinforced by others, e.g., attention, avoidance-escape) properties. Most adolescents reported engaging in self-mutilative behaviour for automatic reinforcement (i.e., emotion regulation), which provides additional support for the affect regulation theory of self-injury, even though it did not objectively measure aspects of affect regulation.

Some research suggests that self-injury serves a variety of functions, many of which are within the domain of emotion. Specifically, in two studies, the majority of self-injuring individuals, including one study of a sample of females with borderline personality disorder, reported the reason for engaging in self-injury was distraction (often described as a coping behaviour; Skinner & Zimmer-Gembeck, 2007) and self-punishment (Briere & Gil, 1998; Brown, Comtois, & Linehan, 2002). In addition, females have described other reasons for self-injury including feeling generation and anger expression (Brown et al., 2002). A clinical sample of adolescent self-injurers most frequently stated the reason for engaging in self-injury as “to cope with feelings of depression” and most of the other reasons given by adolescents were related to affect (Nixon et al., 2002). Furthermore, clinical adolescents with elevated internalised anger most frequently endorsed the following reasons for their self-injury: to express frustration, express anger/vengeance, release underlying tension, or cope with feelings of depression (Nixon et al., 2002).

To the author's knowledge, there has only been one study of self-injury and affect in a community sample of adolescents. Ross and Heath (2003) tested two specific models of self-injury related to affect regulation (i.e., anxiety reduction and hostility models) with high school students. The anxiety reduction model proposed that individuals' self-injure to manage increasing feelings of anxiety because of the relief the self-injury (Favazza, 1998). The hostility model proposed that individuals' self-injure because of an inability to overtly express anger and hostility, and the self-injury behaviour results in emotional relief following periods of stress (Brennum, 1984). Individuals who self-injured were found to have significantly more anxiety and intropunitive (i.e., guilty and self-criticism) and extrapunitive (i.e., acting-out, criticism of others, and paranoia) hostility, and Ross and Heath (2003) reported these findings to be supportive of the hostility model of self-injury.

In sum, the clinical research broadly suggests that those individuals who engage in self-injury do so to manage, control, and express negative affect. However, there are limited studies linking self-injury to processes of affective control and expression in young people. While research has examined individuals' self-reported affective states prior, during, and after self-injury, and used self-report measures to identify the severity of symptomatology (e.g., depression, anxiety), no empirical research has also examined the specific role of individuals' capacities for affect regulation in adolescent self-injury. In addition, research has relied on retrospective measures of affect and regulation, rather than assessing the process of affect regulation on a daily basis. Further research was needed that broadened the focus on self-injury beyond the self-injurious act to consider self-injuring individuals' affect regulation capacities.

### *Maltreatment and Self-Injury*

*Early trauma or loss.* Childhood experiences examined as correlates or predictors of self-injury have included chronic illness or major surgery, parental loss or deprivation, sexual and physical abuse, and emotional neglect (Boudewyn & Liem, 1995; Briere & Gil, 1998; Darche, 1990; Favazza, 1999; Favazza & Conterio, 1988, 1989; Martin et al., 1995; Nijman et al., 1999; Romans, Martin, Anderson, Herbison, & Mullen, 1995; Silk, Lee, Hill, & Lohr, 1995; van der Kolk et al., 1991; Walsh & Rosen, 1988; Zlotnick et al., 1996; Zoroglu et al., 2003). For example, Favazza and Conterio (1989) reported that 62% of their sample of self-referred female self-injurers reported the presence of childhood abuse, and adolescents who self-injured were significantly

more likely to report a history of serious or chronic illnesses and/or major surgeries (Rosenthal et al., 1972; Walsh & Rosen, 1988).

Traumatic experience prior to the onset of puberty seems especially predictive of self-injury when compared to traumatic experiences later in life (van der Kolk et al., 1991). Van der Kolk et al. (1991) found that abuse during early childhood or latency was correlated with self-mutilation; however statistical tests were not reported. It has been reported that traumatic experiences, especially those that occur early in the life cycle, interfere with the development of self-regulatory processes, self-concept, interpersonal functioning, and the capacity to manage subsequent stress (Cole & Putnam, 1992; Herman & van der Kolk, 1987). Self-injury has been theoretically linked to early traumatic experiences as “a way of regulating the psychological and biological equilibrium when ordinary ways of self-regulation have been disturbed by early trauma” (Herman & van der Kolk, 1987, p. 21). The current study examined the aspect of loss, and medical illnesses in the realm of major life events which is discussed later.

*Childhood sexual abuse.* There are three related theoretical perspectives that point to sexual abuse as a correlate of later self-injury. Finkelhor and Browne (1985) identify four traumagenic dynamics which alter the child’s cognitive and emotional orientation to the world, and create trauma by distorting the child’s self-concept, worldview, and affective capacities. These four dynamics include traumatic sexualization, betrayal, powerlessness, and stigmatisation. Yates (2003) proposed three factors to account for the unique link between childhood sexual abuse and self-injury. First, childhood sexual abuse generally evokes dissociative defenses and post-traumatic symptoms that may, in turn, motivate and/or enable tension reduction behaviours such as self-injury. Second, childhood sexual abuse focuses the trauma primarily on the domain of the body, which later serves as the target of self-injury. Third, intrafamilial childhood sexual abuse tends to be accompanied by parental neglect or collusion that prevents the kinds of compensatory parenting experiences that occur in other forms of maltreatment.

Cole and Putnam (1992) have proposed that sexual abuse has a profound impact on the individual’s self-development, particularly in the areas of physical and psychological self-integrity, and self-regulation processes, most importantly in the areas of affect and impulse control. Although Cole and Putnam (1992) focused specifically on incest, rather than broadly on sexual abuse, their comments appear also relevant to the general area of sexual abuse, and highlight an important hypothesised link between sexual abuse and self-injury.

Although somewhat inconsistent, significant covariation has been reported between self-injury and childhood sexual abuse (Boudewyn & Liem, 1995; Briere & Gil, 1998; Cyr et al., 2005; Darche, 1990; Edgardh & Ormstad, 2000; Lipschitz et al., 1999; Low, Jones, MacLeod, Power, & Duggan, 2000; Martin et al., 1995; Romans et al., 1995; Santa Mina & Gallop, 1998; van der Kolk et al., 1991; Walsh & Rosen, 1988; Wonderlich et al., 1996; Yeo & Yeo, 1993; Zlotnick et al., 1996; Zoroglu et al., 2003). Most of these studies assessed childhood sexual abuse using retrospective methods, which may not be free from reporting error and bias. In addition a number of studies did not examine other aspects of maltreatment (e.g., Cyr et al., 2001; Darche, 1990; Edgardh & Ormstad, 2000; Martin et al., 1995; Wonderlich et al., 1996; Yeo & Yeo, 1993, Zlotnick et al., 1996).

In one study of 438 university students, having a history of childhood sexual abuse was significantly associated with the frequency of self-injury ideation and actions of self-injury (i.e., self-mutilation, substance abuse, and termination of vital treatment (Boudewyn & Liem, 1995). Additionally sexual abuse was found to be a significant predictor of self-injury in adolescent inpatient clients (Zlotnick et al., 1999). Conversely, Zweig-Frank, Paris, and Guzder (1994) found that the only aspect of sexual abuse that significantly related to self-injury was sexual penetration, and this relationship was no longer significant after accounting for borderline personality disorder. However, these associations might be explained by gender and the evidence is not consistent. In a clinical sample of adolescents, no male self-injurers reported a history of sexual abuse (Nixon et al., 2002), and other research has failed to demonstrate a significant association between a history of childhood sexual abuse and the presence of self-injury (Brodsky et al., 1995; Rodriguez-Srednicki, 2001; Swanston, Nunn, Oates, Tebbutt, & O'Toole, 1999). For example, Baral et al. (1998) found that 66.7% of females with a history of sexual abuse by family members did not engage in self-injury behaviour.

*Childhood physical abuse.* Significant associations between self-injury and physical neglect also have been reported (Green, 1978; Hawton, 1982; Santa Mina & Gallop, 1998; Tulloch et al., 1994; van der Kolk et al., 1991; Walsh & Rosen, 1988; Zoroglu et al., 2003). For example, self-injuring patients reported more childhood traumatic experiences, mainly emotional and physical abuse, than clients who did not self-injure, and the exclusion of patients with borderline personality disorder did not change this association (Nijman et al., 1999). Other researchers (e.g., Boudewyn & Liem, 1995; Lipschitz et al., 1999; Zweig-Frank et al., 1994) have reported that physical



abuse does not significantly predict self-injury. It seems plausible that physical abuse is related to self-injury in adolescents given that research has shown that the earlier children experience harsh physical treatment by caregivers the more likely they are to experience adjustment difficulties in early adolescence (Keiley, Howe, Dodge, Bates, & Pettit, 2001).

*Emotional neglect in childhood.* As has occurred in studies of sexual abuse and physical abuse, there have been multiple studies of self-injury and a history of neglect in childhood, but links have been inconsistent. Four studies reported significant associations between self-injury and emotional neglect (Dubo, Zanarini, & Lewis, 1997; Lipschitz et al., 1999; van der Kolk et al., 1991; Zoroglu et al., 2003). Both Lipschitz et al. (1999) and Zlotnick et al. (1999) found that emotional neglect was a significant correlate of self-injury in their samples of adolescent inpatient clients, and severity of family neglect predicted cutting in a study by van der Kolk et al. (1991). Similarly, Dubo and colleagues (1997) determined that emotional neglect was the strongest predictor of self-injury behaviour. Conversely, Lipschitz and colleagues (1999) found that the relationship between neglect and self-injury was not as large in magnitude as that found between sexual abuse and self-injury. As was found with sexual abuse, gender may be an issue in these studies. Gratz et al. (2002) identified gender differences for the impact of emotional neglect, such that neither maternal nor paternal emotional neglect was associated with self-injury among male college students, yet both were significant predictors of self-injury for female college students. The very nature of emotional neglect appears to make it more difficult to objectively examine.

*Parental psychological control during adolescence.* Psychological control is defined as a “psychologically oriented, intrusive, constraining, and manipulating form of parental control in which parents appear to maintain their own psychological status at the expense and violation of the child’s self” (Barber, Bean, & Erickson, 2002, p. 263). Parental psychological control has been consistently related to internalising and externalising problems, and problems in school performance in adolescents (Barber, 1996; Barber, Olsen, & Shagle, 1994; Barber et al., 2002; Conger, Conger, & Scaramella, 1997; Pettit, Laird, Dodge, Bates, & Criss, 2001).

Parental psychological control may be best considered as a negative indicator of the quality of the relationship between the parent and the child (Barber et al., 2002). Characteristics of psychological maltreatment parallel the conceptualisation of psychological control as a communication pattern that undermines children’s important developmental tasks and inhibits competent emotional, social, cognitive, and social-

cognitive functioning in children (Cicchetti, 1989; McGee & Wolfe, 1991). Such characterisations include rejecting (e.g., Engels & Moisan, 1994), degrading (Brassard, Hart, & Hardy, 1993), ostracism (Claussen & Crittenden, 1991), emotional neglect (Engels & Moisan, 1994), and blaming and scapegoating (Gross & Keller, 1992; Sanders & Becker-Lausen, 1995).

The following constructs have been found to be associated with psychological maltreatment and therefore psychological control: dissociation (e.g., Sanders & Becker-Lausen, 1995), depression (e.g., Gross & Keller, 1992); interpersonal problems (e.g., Vissing, Straus, Gelles, & Harrop, 1991); self-esteem (Gross & Keller, 1992); cognitive and emotional functioning (Burnett, 1993); and aggressiveness, withdrawal, emotional maladjustment, antisocial behaviour, and anxious attachment (Claussen & Crittenden, 1991). Given that self-injury is viewed to co-occur within the realms of depression and/or anxiety, both of which are internalising problems, it was hypothesised that self-injury and the more subtle type of abuse, psychological control, would be associated.

*Summary.* Although research has shown that maltreatment experiences early in life are correlated with self-injurious behaviour in adolescence and theories provide comprehensive descriptions of developmental pathways and processes that include maltreatment (Finkelhor & Browne, 1985; Cole & Putnam, 1992; Yates, 2003), the mechanisms for these associations are not fully understood. Bringing together recent relevant theories, previous research, the comments of clinical experts in the area of self-injury, affect and coping, and a developmental psychopathology framework helped to isolate some of the core questions that are yet to be answered. The current studies aimed to identify which specific aspects of maltreatment that are correlated with self-injury, and to consider which aspects (maltreatment, major life events, or daily hassles) were more strongly associated with self-injury.

### Proximal Processes Involved in Self-Injury

#### *Affect, Behavioural and Cognitive Regulation, and Coping with Stress*

Most models of self-regulation suggest that cognition, motivation, affect, volition, and behaviour can be regulated to varying degrees by individuals (Pintrich, 2000). Posner and Rothbart (2000) stated that understanding the self-regulatory system is critical for an understanding of the development of psychopathology. Some researchers view self-regulation as including coping behaviours. Compas and colleagues (2001) stated that coping and self-regulation are closely linked (see also Skinner &

Zimmer-Gembeck, 2007). Hence, findings from the coping research should provide valuable information on the nature and development of self-regulatory processes. Importantly, Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen (1986) found that variability in coping is partly influenced by individuals' perceptions about what is at stake in specific stressful experiences and their perceived options for coping.

*Coping with stress in adolescence.* The study of coping in self-injuring adolescents is important given that stressful experiences alone have been insufficient in explaining negative mental health outcomes during adolescents (Compas, Orosan, & Grant, 1993). Coping has been defined by Lazarus and Folkman (1984) as an ongoing dynamic process that changes in response to the changing demands of a stressful encounter or event. Compas (1987) stated that adaptive coping cannot be characterised by a description of the individual's skills or resources alone but instead lies in the relation between the adolescent and the environment. What is effective or constructive coping in one context may be ineffective or inappropriate in another context. The ways in which adolescents cope with stress are potentially important mediators and moderators of the impact of stress on current and future adjustment (Compas et al., 2001).

The problem-focused versus emotion-focused conceptualisation of coping prescribed by Lazarus and Folkman (1984) is one of the most frequently cited and utilised models of coping. Yet, this model has not been without criticism. Compas, Worsham, Ey and Howell (1996) state that a single coping strategy may be simultaneously directed toward both problem- and emotion-focused goals, and as such the problem- versus emotion-focused coping dichotomy does not fully express the intentions of various coping efforts (Compas, Connor, Osowiecki, & Welch, 1997).

There are many other coping categorisations that have been proposed (Compas et al. 2001) including whether the purpose is to enhance a sense of personal control over the environment and his/her reactions (primary control) or to adapt to the environment (secondary control). Assimilative coping versus accommodative coping refer to primary control coping and secondary control coping, and engagement versus disengagement coping (Rudolph, Dennig, & Weisz, 1995; Weisz, McCabe, & Dennig, 1994). Other researchers have identified a variety of subtypes of adolescent coping. For example, Ayers, Sandler, West, and Roosa (1996) found 10 coping subscales and identified four primary factors: (a) active coping, (b) distraction, (c) social support, and (d) avoidance.

Research has indicated that less adaptive coping behaviours (e.g., emotional ventilation or discharge, poor problem solving, cognitive and behavioural avoidance,

wishful thinking, self-blame or self-criticism, and resigned acceptance) are positively related with both internalising and externalising problems in adolescents (Compas et al., 2001; Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000; Ebata & Moos, 1991; Glyshaw, Cohen, & Towbes, 1989; Gonzales, Tein, Sandler, & Friedman, 2001; Hampel & Petermann, 2006; Kurdeck, 1987; Piko, 2001; Singer, Glenwick, & Danyko, 2000). The literature has also revealed a positive relationship between emotion-focused coping and internalising problems (Compas et al., 2001). Research on avoidant coping has identified a positive relationship with physical illnesses and, in females, certain psychological problems (Wilson, Pritchard, & Revalee, 2005). Other research has noted avoidant coping to accentuate the positive relationship between daily hassles and internalising symptoms for females (Grant et al., 2000). These responses may reflect inadequate skills in regulating the experience and release of negative emotions (Compas et al., 2001). In a recent laboratory study with university students secondary control coping (i.e., distraction) was found to moderate the relationship between involuntary stress reactivity and internalising problems (Connor-Smith & Compas, 2004).

Active coping, which is considered a form of adaptive coping, has been found to moderate the relationship between family stress and conduct problems, and between community stress and academic grades, in adolescent females (Gonzales et al., 2001). However for adolescent males active coping was found to moderate the relationship between peer stress and depression, between community stress and depression, and between community stress and academic grades (Gonzales et al., 2001).

Having a focus on emotions is not the problematic element of coping strategies, but rather the coping strategies involve disengaging from the stressor or one's emotions, negative thoughts about the situation and self, and unregulated release or ventilation of emotions (Compas et al., 2001). Furthermore, the use of problem-focused coping by adolescents was found to be a significant predictor of resiliency, and wishful thinking and avoidance were significantly and negatively associated with resiliency (Markstrom, Marshall, & Tryon, 2000).

Research with children highlights that individual differences in coping adequacy appear to be related to children's temperaments (e.g., Eisenberg et al., 1993), sex-role socialisation (e.g., Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994), and also importantly to a history of trauma and distress (e.g., Asarnow, Carlson, & Gurthrie, 1987; Goodman, Brogan, Lynch, & Fielding, 1993). Research suggests that children and adolescents' quality of coping strategies and their personality characteristics (e.g.,

neuroticism, sociability) influence whether or not they become distressed or remain resilient during negative life events (Boekaerts, 1996). In addition, emotion regulation has been found to be negatively associated with depressive symptoms in a sample of university students, with those with relatively better emotion regulation strategies having lower levels of depressive symptoms (Ciarrochi, Deane, & Anderson, 2002).

Only three studies have examined associations between self-injury and coping behaviour. In one study (Dise-Lewis, 1988) a significant negative correlation was found between self-injury and teachers' reports of adolescents' adaptive coping abilities. The second study included male prisoners who self-injured and those who did not. This study found significantly fewer cognitive coping resources and more problem avoidance among prisoners who self-injured as compared to other prisoners (Haines & Williams, 1997). A third study examined coping among adolescents who self-injured, yet their intent was not reported (Evans, Hawton, & Rodham, 2005). Evans and colleagues (2005) utilised a brief, dispositional measure of coping, and found that adolescents who self-injured were more likely to stay in their room (i.e., avoidance), and female self-injurers were more likely to report getting angry (i.e., expressing feelings), compared to adolescents who did not self-injure. With a sample of high school adolescents, rather than self-injurers, Frydenberg and Lewis (2004) identified a group who used seeking relaxing diversions, wishful thinking, and worry to cope with stress more than others, and this group had features that suggested that these coping strategies were maladaptive.

Thus, there is some, but very limited, evidence to hypothesise that adolescents who self-injure will utilise more maladaptive coping behaviours than other adolescents. This hypothesis was examined in the current research. The current study employed a situational approach (rather than a dispositional approach) to the research of coping by asking participants to report on coping responses in relation to recent, specific problems, and also incorporated the individuals' perceptions of the helpfulness of the coping strategies employed.

In sum, associations between self-injury and affect regulation have been a focus of much theoretical writing and some research, but the multiple aspects of self-regulation, including coping, have never been simultaneously empirically examined in relation to adolescent self-injury. This has not only limited validation of the affect regulation theory of self-injury, but also has provided limited general understanding and prediction of self-injury behaviours. The current study broadened the focus of the affect regulation theory of self-injury to also include behavioural and cognitive components of self-regulation operationalised as coping behaviours.

*Stressful Life Events and Daily Hassles*

Many discussions in the extant literature imply that stress is an antecedent of self-injury. Furthermore, most central developmental psychopathology models recognise the potential importance of psychosocial stress in the aetiology and maintenance of both internalising and externalising in adolescents (e.g., Cicchetti & Toth, 1991; Haggerty, Sherrod, Garnezy, & Rutter, 1994; Rutter, 1989). Ross and Heath (2002) hypothesised that some adolescents experiment with self-injury to deal with specific stressful life events, and may continue to self-injure due to more chronic stressors. However, only one study has empirically tested this implicit link between stress and self-injury. Garrison, Addy et al. (1993) reported a positive relationship between undesirable life events and risk of self-injury in adolescents.

*Types of stress.* Stress has been described as an individual experience that varies in relation to life events, personal resources, and the subjective appraisal of these two factors (Dise-Lewis, 1988). Stress can serve as a source of positive growth and development, although it is more often considered a risk factor for maladjustment and psychopathology (e.g., Compas et al., 2001; Compas, Grant, & Ey, 1994). Two types of stressors, namely major life events and daily hassles, were examined in the current study. Major life events are seen as critical or traumatic events that are usually non-normative in nature, while daily hassles are more proximal, focus on the day-to-day disruptions in one's life, and occur with greater frequency than major events (Williams & McGillicuddy-De Lisi, 2000). Kanner et al. (1981) defined hassles as "the irritating, frustrating, distressing demands that to some degree characterise everyday transactions with the environment" (p. 3). Major life events and daily hassles are not always independent, in that major life events can affect adjustment partly by increasing the number of much more frequently occurring stressors commonly referred to as hassles (Kessler et al., 1985). Kanner and colleagues (1981) stated that "the overall level of demands on a person and her or his perception of resources to meet them may determine to a considerable degree what minor events are noticed or remembered and how bothersome they are considered" (p. 5).

The majority of studies assessing stressful life events in children or adolescents are consistent with conceptualisations of objective environmental stressors (Grant et al., 2003) rather than transactional models which highlight the importance of the individuals' cognitive appraisals of the degree and type of challenge, threat, harm, or loss (Lazarus & Folkman, 1984). Nonetheless, the various aspects of stress can be

difficult to measure within a single study. Mullis, Young, Mullis and Rathge (1993) stated that including average and frequency measures of stress may yield more important information than any one measure alone. Also, negative and positive stress, and the time period that has elapsed since the occurrence of life events appear to be important dimensions of stress. Measurement of daily hassles should ideally include content of daily stressors and their subjective intensity, but also fluctuations in content and intensity over time (Lazarus, 1990). The current study not only examined the actual occurrence of stressful events (major life events and daily hassles) but also the amount of perceived stress associated with each event.

*Stress during adolescence.* Stressful events of both major and minor severity have been significantly related to internalising (e.g., depression, anxiety, somatic complaints) and externalising (e.g., days of school missed, behavioural problems) symptoms for adolescent males and females (e.g., Compas, Malcarne, & Fondacaro, 1988; Grant et al., 2000; Swearingen & Cohen, 1985b; Windle, 1992; Yarcheski & Mahon, 1999), and have been shown to significantly predict psychological distress (Swearingen & Cohen, 1985a). Experiences of daily hassles have also been significantly associated with adolescent adjustment, and have been shown to be a significant and independent predictor of adjustment over and above any effects attributed to major life events (e.g., Compas et al., 1987; Rowlison & Felner, 1988; Wagner et al., 1988). In adults, daily hassles have been found to be more strongly associated with positive outcomes than life events (Kanner et al., 1981). Additionally, adolescent research has shown that the relationship between major life events and psychological distress is mediated by levels of chronic daily stress (Bolognini, Plancherel, & Halfon, 1996; Compas, Howell, Phares, Williams, & Giunta, 1989; Seiffge-Krenke, 1995). Conversely, research has also indicated that there are a large number of young people who do not appear to be negatively impacted by their experienced severe and/or multiple life events (e.g., Goodyer & Altham, 1991). In sum, previous research suggests that a feature of some major life events is the degree of ongoing disruption that they produce in an individual's life and their immediate environment, which, in turn, has an impact on adjustment. Subsequently, this indicated the importance of assessing both major life events and daily hassles in studies of stress and adjustment.

*Short term, repeated measures studies of mood, stress and coping.* A repeated measures design that uses frequent (e.g., daily) assessments over a short period of time has been used in the areas of mood, stress and coping to provide a high number of repeated prospective measurements of important constructs in a short time frame (e.g.,

Bolger & Zuckerman, 1995; Gunthert, Cohen, & Armeli, 1999, 2002; Hahn, 2000; Marco, Neale, Schwartz, Shiffman, & Stone, 1999; Stone, Kennedy-Moore, & Neale, 1995; Suls, Green, & Hillis, 1998). These studies primarily use structured pen-and-paper dairies or electronic diaries with an alarm, and reminder phone calls. This form of repeated measures improves upon cross-sectional studies and, in some cases, longitudinal research with long lags between assessments. Furthermore, diary data can help determine the antecedents, correlates, and consequences of daily experiences (Bolger, Davis, & Rafaeli, 2003).

Improvements to studies of stress and coping have accompanied the use of this research design. Primarily, most studies of stress and coping have relied on some retrospective reporting often requesting recall of stressful events and coping behaviours over the last week or more. Collection of retrospective data has multiple problems. One problem is recall bias and was especially highlighted in studies of the effects of personality on stress which show that as time elapses people create more dispositional explanations of their own behaviour (Moore, Sherrod, Liu, & Underwood, 1979; Peterson, 1980). Relating to coping behaviours, Marco and colleagues (1999) reported that retrospective reports might not be accurate representations of the actual coping behaviours used at the time of the event. Van den Brink, Bandell-Hoekstra, and Abu-Saad (2001) compared the reporting of headaches with the use of a single self-report questionnaire and daily diary entries and found that headache intensity and duration were overestimated when data were collected with a single questionnaire. Additionally, recall errors have been related to the following factors: interference, the length of time between the occurrence of an event and the recall of that event, the salience of the event, the participant's psychological state, personal variables, social desirability, interviewing technique, and the motivation of the respondent (van den Brink et al., 2001). In sum, frequent assessment more closely linked in time with the phenomena of interest has the potential for greater study validity.

While there are some clinical research studies that have used a high number of repeated assessments within a short period of time (e.g., Beidel, Turner, & Morris, 1999; Gunthert et al., 1999; Hahn, 2000; Marco et al., 1999, Marco & Suls, 1993), it appears that the majority of research utilising this design has been within the areas of health and social psychology. For example, Rollnik, Karst, Fink, and Dengler (2001) examined how individuals cope with headaches, Gil and colleagues (2001) examined daily pain coping skills in children with sickle cell disease, Sherliker and Steptoe (2000) examined coping with cancer treatments, and Affleck and colleagues (1999) examined



daily pain, mood, and coping with arthritis. Hence, the application of this method in studies of clinical problems, such as self-injurious urges and behaviours, is fairly new, yet has the potential to inform the field about the processes that lead to and follow from self-injury.

Daily negative affect has been linked with a number of events, including interpersonal conflicts (Bolger, DeLongis, Kessler, & Schilling, 1989), perceived daily stress (Watson, 1988), daily hassles (DeLongis, Folkman, & Lazarus, 1988), and daily undesirable events (Affleck, Tennen, Urrows, & Higgins, 1994; Marco & Suls, 1993; Stone, 1987). Daily events were still associated with affect even after controlling for neuroticism and extraversion (David, Green, Martin, & Suls, 1997). Vittengl and Holt (1998) found that daily negative affect was positively associated with time spent arguing or confronting, and receiving help or support, whereas daily positive affect was positively associated with time spent in fun or active activities, and necessary or informational social interactions. The previous day's mood did not systematically affect the current day's mood (David et al., 1997). Interestingly, while greater mood changes were associated with appraisals of high stress and high disruptiveness, coping failed to predict any pre- or post-stressor mood changes (Marco et al., 1999).

It appears that obtaining information through the use of repeated and systematic diary entries in a short period of time, especially when used in combination with more in-depth cross-sectional assessments, will provide the depth of information, validity of reporting, and power that was required in the current research. While past researchers have described findings about individuals' emotional states prior to, during, and after the self-injurious act, this information has been retrospective (Briere & Gil, 1998; Kemperman et al., 1997; Nixon et al., 2002; Schwartz et al., 1989). The current research design overcame this limitation and allowed for the determination of environmental events, individual characteristics, and individual responses that are associated with self-injury (including urges and behaviours) in adolescents. This repeated assessment method seemed particularly useful for testing the affect regulation theory of self-injury by providing data to more precisely examine the process and dynamics including stress, affect, affect regulation, personal attributes, and coping. The pattern of urges and overt self-injury behaviour could also be examined using this design. Finally, a focus on repeated assessments of stressful events in the current research was also supported by the evidence that minor day-to-day stressors have a more significant influence on distress and associated problems than do major life events (e.g., Pillow, Zautra, & Sandler, 1996).

*Stress Reactivity and Temperament / Personality*

The construct of stress reactivity helps to explain why several individuals may experience similarly stressful situations yet respond differently. Stress reactivity refers to individual differences in physiological, cognitive, and emotional responses to stress (Compas et al., 2001). While reactivity may vary with specific emotions, highly reactive individuals have a lower threshold of initial response, are slower in recovery or return to baseline, and display greater reactivation of arousal with repeated exposure to stress (i.e., slow habituation; Compas et al., 2001). Identification of individual differences in responses to stress may clarify how and why stressful events contribute to emotional and behavioural problems (Compas & Phares, 1991). Individual differences in reactivity are thought to relate to coping, as they may affect the individual's initial automatic response to stress and may inhibit or facilitate certain types of coping responses (Compas et al., 2001). An individual's stress reactivity may be more important to understanding associations between stress, self-regulation/coping, and self-injury than objective measures of stress to which one has been exposed. Conversely, it seems likely that early traumatic experiences may impact on individuals' levels of stress reactivity, which, in turn, influence individuals' experiences of stressful situations and how they regulate and cope with situations. Studies that fail to consider the effects of personal resources that may moderate the association between stress and outcomes fail to value the complexity of stressful life events (Hoffman & Su, 1998).

Related to stress reactivity are individual temperamental/personality characteristics. An individual's temperament may function as a risk or protective factor for the development of psychopathology (Rothbart & Ahadi, 1994). Temperamental characteristics are personal attributes that likely influence coping and self-regulation, as well as contributing to the individual's adaptation to stress (Eisenberg et al., 1997; Lengua, Sandler, West, Wolchik, & Curran, 1999). As an aspect of stress reactivity, the current research examined one specific aspect of personality, neuroticism, to determine the role of neuroticism in the process of stress experiences, stress reactivity, regulation, coping and self-injury. Neuroticism is conceptualised as a broad dimension of personality in which people vary in autonomic nervous system lability and in the tendency to experience negative emotions (Eysenck & Eysenck, 1985). Costa and McCrae (1992) highlight that neuroticism indicates a tendency to have unrealistic ideas, an inability to control urges, and inefficient ways of coping with stress. Furthermore, the negative perceptions, expectations, and affect associated with neuroticism may impair

decision making, create conflict with others, and lead to dysfunctional behaviour that in turn, creates negative, stressful life events (Suls & Martin, 2005). Clinicians and researchers have been particularly interested in the personality aspect of neuroticism, because they have rightly believed that children high in this trait are at risk for psychological disturbances (Shiner & Caspi, 2003).

Research has found that individuals high in neuroticism experience greater distress in response to major life stress (e.g., Innes & Kitto, 1989; Ormel & Wohlfarth, 1991; Parkes, 1990) and daily stressors (Bolger & Schilling, 1991; Bolger & Zuckerman, 1995; Marco & Suls, 1993; Suls et al., 1998). Also neuroticism has been found to predict negative affect in everyday life (Costa & McCrae, 1980), and to explain significant amounts within- and across-day variation in negative mood (Bolger & Schilling, 1991; Marco & Suls, 1993). DeLongis and Holtzman (2005) hypothesised that individuals high in neuroticism appear to choose the wrong coping strategies for the situation. Given that self-injury has been conceptualised in the current research studies as a coping strategy, it was hypothesised that adolescents who utilise self-injury would also be higher in neuroticism.

#### *Anxiety and Depression in Adolescents*

A number of psychological disorders, diagnoses, and symptoms have been associated with self-injury. Self-injury is reported among individuals with eating disorders (i.e., anorexia nervosa and bulimia nervosa) (Alderman, 1997; Dulit, Fyer, Leon, Brodsky, & Frances, 1994; Favaro & Santonastaso, 1988, 1998; Favazza & Conterio, 1989; Favazza et al., 1989, Ruuska, Kaltiala-Heino, Rantanen, & Koivisto, 2005, Wiederman & Pryor, 1996, Wonderlich et al., 1996), post-traumatic stress disorder (PTSD) (Kisiel & Lyons, 2001; Zlotnick et al., 1999), personality disorders or psychoses (e.g., Zlotnick, 1999; Zweig-Frank et al., 1994), depression (Dulit et al., 1994; Turell & Armsworth, 2000), substance use (Tulloch, Blizzard, Hornsby, & Pinkus, 1994), dissociation (Zoroglu et al., 2003), and obsessions and compulsions (McKay, Kulchycky, & Danyko, 2000). In general, self-injury rarely occurs in isolation from other symptoms or disorders.

Specifically related to adolescents, research has indicated self-injury to be related to the symptoms and diagnoses of anxiety and depression (Darche, 1990; Garrison, Addy et al., 1993; Garrison, McKeown et al., 1993; Groholt et al., 2000; Hawton, 1982; Martin et al., 1995; Penn et al., 2003; Ross & Heath, 2002; Tulloch et al., 1997). Higher rates of depression were found in female adolescent inpatients who

self-injured compared to those who did not (Darche, 1990). Garrison, Addy et al. (1993) and Ross and Heath (2002) both found that self-injuring high school students had significantly more depression and anxiety symptoms than adolescents who did not self-injure. The presence of depression, anxiety or both may be indicators of ineffective affect regulation, and past research has tended to view these symptoms as indicative of ineffectual affect regulation without specifically studying the affect regulation process, or they do so retrospectively. These comorbid conditions were important ones to assess in the current studies given their known associations with self-injury.

### Self-Injury and Phenomenological Research

Phenomenology is concerned with the ways in which people gain knowledge of and experience the world around them, which may include particular contexts and particular times periods (Willig, 2001). From a phenomenological research perspective, the participants' perceived meaning of experience holds greater importance than objective reality (Barker, 2002). Furthermore the researcher endeavours to understand the participants' thoughts, feelings, perceptions and interpretation of the world, others, and themselves (Barker, 2002). Thus each participant's experiences, actions, and perspectives are considered to have their own validity (Barker, 2002).

Interpretative Phenomenological Analysis (IPA) is a systematic and practical approach for analysing phenomenological data (Barker, 2002). The IPA produced by the researcher is always an interpretation of the participant's experience (Willig, 2001). IPA usually considers data from both within-case and cross-case analyses. First, IPA works with texts generated by participants and these are analysed one by one. Second, cross-case analysis looks across individuals in order to identify common themes about the phenomenon being studied, aiming to identify which aspects are shared across participants (Barker, 2002). Thus, IPA employs an idiographic approach whereby insights produced as a result of intensive and detailed engagement with individual cases are integrated only in the later stages of the research analysis (Willig, 2001).

A small number of qualitative studies have been conducted within the self-injury empirical literature. These studies have utilised different phenomenological approaches. Leibenluft, Gardner, and Cowdry (1987) and Solomon and Farrand (1996) both presented a small number of case descriptions of young women who self-injure, yet did not indicate the theoretical framework that guided their research. Ireland (2000) examined 89 written incidents of self-injury by young male offenders that were written reports completed by prison staff. No theoretical framework was acknowledged by

Ireland (2000). Also lacking in a theoretical framework was Pattitson and Kahan's (1983) review of 56 individual case studies selected from clinical literature. Scott (1999) described a phenomenological case study of a woman who self-injured. Painter and Howell (1999) conducted a phenomenological study of rage and women's sexuality after childhood sexual abuse, and utilised the constant comparative method of data analysis. Weber (2002) utilised the social constructive framework when researching self-injuring women in a clinical setting, and analysed the data from a narrative perspective. Whitlock and colleagues (2006) utilised content analysis in their research of postings on 10 self-injury Internet message boards.

Three recent empirical research studies have utilised Interpretative Phenomenological Analysis (IPA) within the field of self-injury empirical research. Alexander and Clare (2002) studied and analysed the subjective experience of self-injury for 16 women who identified as lesbian or bisexual and who had deliberately self-injured on repeated occasions. Crouch and Wright (2004) examined deliberate self-harm at a residential treatment setting for adolescents with mental health problems. The third study conducted online focus groups and e-mail interviews to explore the sense of self of self-injurers (Adams, Rodham, & Gavin, 2005).

Scott (1999) justified a qualitative study by stating that within the literature exist conflicting definitions and meanings for the experience of self-injury. Scott (1999) stated that the contemporary research on self-injury is missing a thorough, systemic, qualitative study that presented the perspective of those who suffer from the behaviour of self-injury. These same arguments can be used to support the use of qualitative data analysis, namely interpretative phenomenological analysis, in the current research, and it was deemed important to use such methods of data analysis with community adolescents who self-injure.

### Summary of the Literature Review

Developmental psychopathology provided a useful framework to examine the process that may influence the association between early (i.e., maltreatment) and later stressful experiences and self-injury. Yates' (2004) traumagenic theory of self-injury provided an additional useful framework for the current research studies. More specifically, a number of links in a pathway from early maltreatment to self-injury behaviours were proposed. First, early maltreatment by caregivers and disruptions of the attachment system cannot be disentangled, and disruptions of the attachment system most often include disruptions of the regulatory system (Farber, 2000). Second, these

early disruptions of regulatory processes can serve as prototypes for later dysregulation, which may be markers of a process that leaves individuals' vulnerable to normative and non-normative stresses and the development of psychopathology (Sroufe, Carlson, Levy, & Egeland, 1999). Traumatic experience in early childhood, particularly in the context of the caregiving relationship, compromises the individual's adaptation in terms of emotional and regulatory competence. Abused and neglected children do not become competent in soothing the self when perceiving experiences as stressful, and may not seek the assistance of others to help them do so. In some cases, they turn to self-injury as a means of self-soothing and re-establishing when experiencing stress and associated cognitions and emotions, at least temporarily, biological and psychological equilibrium (Strong, 1998).

The research evidence, although suggestive, was less clear about the roles of later stressful experiences, self-regulation including affect regulation and coping, and individual attributes in self-injury. In a small set of empirical studies, researchers have demonstrated a general positive association between stress and self-injury, however detailed examinations of this associations have not yet been conducted. In particular, the association of self-injury with different types of stress (major life events, and daily hassles) remained vague. Although there was some limited evidence of associations between some coping strategies and both internalising and externalising problems that suggested that self-injury was associated with a variety of categories of coping behaviour, empirical research was required to examine the links between stress (major life events and daily hassles), stress reactivity, neuroticism, coping behaviours, and self-injury. Previous research suggested that daily hassles would mediate the relationship between major life events and self-injury in adolescents, or at least would be more predictive of self-injury. Furthermore, empirical evidence was needed to determine whether adolescents who self-injure use more maladaptive and less adaptive coping strategies, and are higher in neuroticism than non-self-injuring adolescents.

### The Current Research Studies

The current research was guided by a broad theoretical framework, developmental psychopathology, and specific theories of self-injury, namely affective regulation theory and traumagenic theory. As stated by Yates (2004) the developmental psychopathology framework is useful to the study of self-injury for a number of reasons. First, self-injury exists along a continuum from normal to abnormal behaviour, and the developmental psychopathology framework assists with understanding the

processes that influence an individual's place on this continuum. Second, developmental psychopathology is useful for conceptualising problems as they relate to changes in development over time. Third, the collaborative approach of developmental psychopathology provides an overarching conceptual framework, which allows the incorporation of multiple theoretical perspectives to guide hypotheses.

Questions asked within a developmental psychopathology framework could include the following: "which adolescents are most vulnerable to moving into the psychopathological extremes?", and "what protects adolescents from developing significant disturbances?" (Cicchetti & Rogosch, 2002). Developmental psychopathologists are equally interested in identifying individuals who seem at high risk for the development of psychopathology but who do not manifest it, and understanding those individuals who exhibit disorder (Cicchetti & Rogosch, 2002; Luthar, Cicchetti & Becker, 2000; Sroufe & Rutter, 1984). First, attention to normative development resulted in the current studies including both clinical and community samples of adolescents, and the collection of similar information from both samples, to compare and contrast results. Second, the idea that individuals develop within multiple environments lead to the inclusion of two different samples, as well as examination of stressors, daily hassles, and maltreatment to give an indicator of the various environments in which the participants exist. Third, these same factors were important for the consideration of a variety of developmental pathways.

The current research project contained a longitudinal design component and examined, over a brief period of time, processes related to individuals who both do and do not engage in self-injurious behaviour. Thus information regarding important differences between self-injuring and non-self-injuring adolescents, as well as information on the process of self-injury in a clinical sample of self-injuring adolescents was provided in the current studies. The current research project primarily focused on proximal risk factors with the aim of identifying factors that were more directly predictive of self-injury in adolescents.

The majority of studies in this area have been limited by the assessment of behaviours that include both self-injury and suicide attempts, and the use of broad and inconsistently applied definitions and assessment tools. The current studies utilised a clear operational definition of self-injury that has been previously used by Ross and Heath (2002) when examining adolescents from both clinical and community samples. The self-injurious behaviours included in the current studies were cutting, burning, scratching, self-hitting, pinching, and biting. As such, a number of behaviours were not

included in the definition of self-injury including self-starvation, chronic alcohol ingestion, premature termination of medical intervention, recklessness, and taking drugs or pills. All of the behaviours may be considered as self-harming or parasuicidal acts but do not constitute self-injury as defined in the current research. To be consistent with the exclusion criteria used by Ross and Heath (2002), behaviours such as emotional derogation (e.g., putting the self down) and engaging in other risky behaviours (e.g., reckless driving, unprotected sex) were not included. Furthermore, behaviours within societal norms, such as trimming fingernails, cutting hair, body piercing, and tattooing, were not included in the definition of self-injury. However, the current studies allowed for some flexibility given the use of phenomenological analyses which views the perceptions of the individual (rather than the researcher) of paramount importance.

Some previous writing about self-injury has focused on youth, perhaps because it is expected that adolescence is a period of time when self-injury may first appear, and as such provides the best opportunity for early interventions. Ross and Heath (2002) conducted an important recent study of adolescent self-injury. This study showed that approximately 14% of adolescents aged 13 to 17 years in a Canadian high school sample engaged in self-injury. Given this rate of self-injury and the limited empirical evidence of correlates of this behaviour, additional research was deemed as needed to elucidate factors that might guide future theory, research, and intervention.

Furthermore, hypotheses that have been derived from or tested using anecdotal evidence or from case-studies and small samples were examined in the current studies using both a clear definition of self-injury and larger samples of adolescents in two studies – one in a community sample (Study 1) and one in a clinical outpatient setting (Study 2). Testing related hypotheses in both samples provided for a more complete understanding of self-injury as related to childhood maltreatment, regulation, coping and stress. A primary interest was in determining if the same factors have a role in self-injury when studied in a community as compared to a clinical sample. This overcomes the over-reliance on clinical samples in previous research, and will improve the ability to make conclusions about the generalisability of findings in the current studies. The current research studies were designed to examine associations between multiple types of stress and self-injury. Stressful events, including a history of maltreatment, daily hassles and stressful life events, were expected to be associated with self-injury. Both Study 1 and 2 considered maltreatment, major life events and daily hassles, in addition to the associated perceived stress of life events and daily hassles.



Both Study 1 and 2 included tests of some key propositions of the Traumagenic Model of Self-Injury (Yates, 2004) and the affect regulation model of self-injury in adolescents (Briere & Gil, 1998; Yates, 2004). Both of these models include a number of hypotheses that have not been empirically tested previous to the current studies. In the current research, self-injury was expected to be associated with affect-regulatory processes. This was examined via collecting data about daily experiences of affect and affect regulation, as well as investigating affect-regulation at a more global level, in relation to self-injurious acts. In addition, self-injury behaviours were expected to be associated with other cognitive and behavioural reactions to stress. Connors (1996) stated, “Self-injury is a fundamentally adaptive and life-preserving coping mechanism. It enables people struggling with overwhelming and undifferentiated affect, [and] intense psychological arousal, intrusive memories...to regulate their experiences and stay alive” (p. 199). Self-injury may be conceptualised as an avoidant coping strategy, as the use of self-injury to cope appears to be an unregulated release of emotions, rather than actually dealing with the stressful experience. While self-injury is conceptualised as an avoidant coping strategy in the current study, it was also expected that self-injuring adolescents will engage in other avoidant coping behaviours, and be less likely to use active coping strategies compared to other adolescents.

Support for these models would identify a deficit (e.g., the inability to regulate intense or painful affect) in adolescents who self-injure, and highlight an avenue for intervention. Additionally, other aspects of self-regulation were examined, namely coping, which includes cognitive and behavioural regulation. Together, this provided a more complete understanding of the role of maltreatment, stress, and self-regulation in self-injury. Furthermore, the process of self-regulation in relation to self-injury was examined in Study 2 through the use of daily structured diary reports; this study design is unique thus far in the field of self-injury research. This research design was expected to provide valuable information about the dynamics and interrelationships of stress, coping, affect regulation, affect, individual attributes (i.e., neuroticism), and self-injury behaviour and self-injury ideation.

## CHAPTER 3

### Study 1

There were seven primary research aims of Study 1. The first goal was to examine the affect regulation model of self-injury (Briere & Gil, 1998; Suyemoto, 1998) in a community sample of adolescents' aged 16 to 18. To do this, anxiety and depression, and positive and negative affect were investigated as indicators of affect and correlates of affect regulation. Anxiety and depression have been studied in previous research as indicators of affect regulation problems, but no previous research studies have identified whether specific affect regulation difficulties are associated with self-injurious behaviour. To provide more direct assessments of affect regulation to supplement measures of anxiety, depression and mood, three aspects of affect regulation, namely attention to feelings, clarity of feelings, and feeling repair were also investigated.

A second aim was to extend the focus on regulation, by considering cognitive and behavioural regulation, in addition to affect regulation. Regulation under stress was of particular interest in the current study, so affective, cognitive and behavioural regulation was operationalised as coping used by adolescents in response to stressful situations (Skinner & Zimmer-Gembeck, 2007). The inclusion of measures of coping, anxiety, depression, positive and negative affect, and affect regulation provided a broader assessment of individuals' regulation abilities, and allowed for the comparison of all of these components of affect, cognition, and behaviour between adolescents' with or without a history of self-injury.

The third aim of the current study was to examine a history of maltreatment as a correlate of self-injury. Yates's (2004) traumagenic theory of self-injury provided a framework and was used to develop hypotheses about links between maltreatment and affect regulation, and affect regulation and self-injury. In addition to the most commonly measured aspects of maltreatment (physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect), parental psychological control also was investigated as a potential correlate of self-injury in Study 1. There have been no previous studies of parental psychological control and self-injury. However, there have been theoretical linkages drawn between control and self-injury (e.g., Darce, 1990; Raine, 1982), and research has shown that there are relationships between parental psychological control and other important aspects of adolescent psychological and behavioural functioning (e.g., Barber et al., 2002; Pettit et al., 2001).

A further focus in this initial study was on the perceived experience of stress. Stress was a focus given the hypothesis that individuals engage in self-injury in response to stressful situations (Garrison, Addy et al., 1993). Therefore, a fourth aim was to examine daily hassles, as well as major life events, as correlates of self-injury. Past research has demonstrated the importance of daily hassles in relation to functioning, yet no study had previously examined daily hassles in relation to self-injury. Research has consistently shown that daily hassles are significantly associated with adolescent adjustment, and are a significant and independent predictor of adjustment over and above any effects attributed to major life events (e.g., Wagner et al., 1988). Other theorists (e.g., Lazarus, 1990) speculate that it is the individuals' perceptions of the stressors that are more important than whether or not the stressor actually occurred.

The fifth aim of Study 1 was based upon a phenomenological research perspective, which highlights that the participants' perceived meaning of experience holds greater importance than objective reality (Barker, 2002). Toward this end, individuals' perspectives on their self-injury behaviours and thoughts were gathered by using semi-structured interviews with participants who had a history of self-injurious behaviours and/or thoughts. Scott (1999) stated that the research on self-injury is missing a thorough, systemic, qualitative study that presented the perspective of those who suffer from self-injury.

The sixth aim was to replicate and extend upon a previous study conducted with Canadian high school students (Ross and Heath, 2003). Research on self-injury has utilised multiple and varied methodology, which results in much difficulty when attempting to identify similarities and comparisons between the research results. By using similar methodology to a previous study, an attempt was made to overcome this limitation, and allow for conclusions regarding similarities and differences between the current study findings and the findings reported by Ross and Heath.

Finally, the seventh aim was to include the personality aspect of neuroticism as a potential correlate of self-injury. The inclusion of neuroticism was derived from the developmental psychopathology perspective. Specifically, this perspective has described how individuals influence their environment, rather than simply being passive recipients of environmental forces (e.g., Cicchetti & Rogosch, 2002). Neuroticism was included as an individual characteristic that could affect how individuals interpret their environments, particularly their stressful experience and influence their stress reactivity (Compas et al., 2001; Eysenck & Eysenck, 1985).

Study 1 was conducted in two phases and is reported in three parts. The first phase was a survey study of first year university students (ages 16 to 18), with the primary purpose to identify: 1) university students who engaged in self-injurious behaviour or self-injury ideation for participation in a semi-structured interview and additional survey study, and 2) a matched comparison group of those who did not engage in self-injurious behaviour or ideation. The results from this large survey study are reported in Study 1A. The aim of Study 1B was to verify self-injurious behaviour, to expand the assessment of potential correlates of self-injury behaviour, and to conduct phenomenological interviews with the view to further understanding of adolescent self-injury. In Study 1C, analyses are reported that compared participants verified as self-injurers in the semi-structured interview to a group of matched non-self-injurious participants who completed additional survey items.

## Study 1A

### *Hypotheses*

In accordance with the aims outlined above, there were seven hypotheses in Study 1, Part A. All hypotheses concerned factors that were expected to differentiate self-injurers from both self-injury ideators and a comparison group of young university students who reported no history of self-injurious behaviour or ideation.

### *Affect, Affect Regulation, and Neuroticism*

1. University students who reported self-injury in the past month (“self-injurers”) will have significantly lower positive affect and significantly higher negative affect than both a group of comparison university students with no history of self-injury or ideation (“comparison university students”) and university students who reported self-injury ideation, but no self-injury behaviour, in the past month (“self-injury ideators”).
2. In relation to affect regulation, self-injurers will experience significantly poorer clarity of feelings, more difficulties with feeling repair, and attend more to their feelings, than the comparison university students and self-injury ideators.
3. Self-injurers will be higher in neuroticism than the comparison university students and self-injury ideators.

### *Stressful Experiences and Coping*

4. Self-injurers will experience significantly more daily hassles compared to the comparison university students and self-injury ideators.

5. Self-injurers will perceive their experienced daily hassles as significantly more stressful than the comparison university students and self-injury ideators.
6. In consideration of coping, self-injurers, compared to the comparison university students and self-injury ideators, will use less active coping and seeking social support, and will find these less helpful when utilised.
7. Self-injurers will use significantly more avoidance and distraction coping strategies, and will find these less helpful when utilised, than the comparison university students and self-injury ideators.

## Method

### *Participants*

Seven hundred and fourteen (714) surveys were distributed, and 537 university students (63% female) returned completed surveys (participation rate of 75%). Participants who were missing more than 10% of items on any one measure were excluded from the analyses. This resulted in sample sizes that ranged from 479 to 533 depending on the measures included in each analysis.

*Total sample.* The 537 participants ranged in age from 16 years to 18 years, 11 months, with a mean age of 17.4 years ( $SD = .54$ ), and a median age of 17 years. Participants were enrolled in a range of university degrees, including health science based degrees (i.e., physiotherapy, exercise science, and biomedical science), business, psychology, engineering, education, and law. Four participants were enrolled in the GUEST program, which means they were still completing grade 12 at high school and also enrolled in a university subject. With respect to ethnic background, 84.2% of participants identified as being of white/Caucasian/ European descent, 5.8% were of Asian descent, and 3.2% identified as both white/Caucasian/European and Asian heritage. The remaining 6.8% of participants reported a range of ethnic backgrounds including African, New Zealand Maori, Middle Eastern, South American, Mauritian, or Indian heritage.

The majority of the participants (70.4%) were from a two biological parent family, 14.2% were from a single parent family, and 10.4% of participants were from a single parent and one step-parent family. The remaining eight participants had a range of other family structures. The majority of participants (78.4%) reported currently living with their respective families. Of the remaining participants, 5.2% were living with friends, 4.8% were in university accommodation, and 1.9% lived alone or in other living

arrangements (i.e., living with other relatives, living with their partner, or living with family friends). Eighteen participants did not report their current living arrangement.

A little over a third of the participants reported that their mothers (35.9%) had completed a university degree, and a little over a quarter (28.5%) had completed grade 11 or less. Year 12 had been completed by 21.6% of the participants' mothers, and 12.7% had completed a trade certificate or diploma. Seven participants did not provide a response regarding their mother's highest level of education. Similarly, 32.2% of participants' fathers had completed a university degree, and a quarter had completed year 11 or less at high school. A trade certificate or diploma had been completed by 22.5% of the participants' fathers, and 13.8% had completed grade 12 at high school. Thirty-five participants did not provide a response regarding their father's highest level of education. The majority of participants' mothers (77.44%) and fathers (84.73%) were employed.

### *Measures*

*Self-injury urges/thoughts and behaviours.* Embedded in the Children's Coping Strategies Checklist (CCSC; Sandler, Tein, & West, 1994; see below) were the following two additional survey items "I hurt myself on purpose" (adopted from Ross & Heath, 2002), and "I think about/feel like hurting myself on purpose.", in response to the prompt, "When you had a problem in the last month you...". Responses options ranged from 1 (*never*) to 4 (*most of the time*). Similar to instructions for the CCSC, participants were then instructed that for each coping strategy used *sometimes*, *often*, or *most of the time*, to also indicate how effective they thought the use of the coping strategy was, in that did it help him/her to solve the problem or feel better. The prompt was "Did it help?" and ranged from 1 (*not at all*) to 4 (*a lot*). These items were included to identify individuals for comparison in Study 1A, and as screening items to identify participants to participate in the interviews conducted for Study 1B and 1C.

When measuring for self-injury it was important to consider the time reference given to participants. Some researchers have not specified a period of time, but rather asked if participants have *ever* self-injured or the lifetime occurrence (e.g., Brodsky et al., 1995; Nijman et al., 1999; Osuch et al., 1999; Ross & Heath, 2002; Schwartz et al., 1989; Turrell & Armsworth, 2000). Some researchers do not mention the time frame at all (Boudewyn & Liem, 1995; Herpertz, 1995). Other researchers specify their interest in the occurrence of self-harm within *three months* of the individuals' hospitalisation (e.g., Zlotnick et al., 1996, 1999), or in the *last six months* (e.g., Martin et al., 1993).

Guertin and colleagues (2001) and Zlotnick et al. (1997) investigated self-injury that occurred within the *past year*, and the *year* preceding hospitalisation, respectively. Zweig-Frank and colleagues (1994) examined the occurrence of self-injury in the last *two years* and Nixon et al. (2002) considered repetitive self-injury as occurring at least once a month for the past six months, and included only this frequency in their analyses. Given that there has not been a consistent approach to setting an optimal time period, the one-month period selected for this research was chosen to maximise an examination of feelings and behaviours associated with *current* acts of self injury, to maintain consistency with the current study's investigation of other coping strategies, and to reduce the potential for recall bias.

A second important issue relating to the measurement of self-injury is whether or not to consider it as a dichotomous or continuous variable. A variety of strategies have been used in past research for categorisation. For example, Zlotnick et al. (1999) obtained the frequency of self-injury using the categories never, once, twice, or three or more times. Participants were then categorised as non-injurers if they reported none, one or two episodes of self-injury, and frequent self-injurers if they reported three or more episodes of self-injury. Others have used similar techniques (e.g., Simeon et al., 1992; Schwartz et al., 1989; van der Kolk et al., 1991). Other researchers have defined more than two categories of self-injury. Brodsky et al. (1995) categorised the sample as non-injurers, infrequent injurers (1 to 10 lifetime episodes), or frequent injurers (more than 10 lifetime episodes). Low and colleagues (2000) subdivided the self-injury group as non-self-injurers (no self-injury within the 30-month incidence period), infrequent self-injurers (harmed themselves less than once a month), and frequent harmers (incidence rate of self-injury was greater than once per month). Also, the categories of never, once, and more than once for acts of self-injury and self-injury ideation, separately, were used by Boudewyn and Liem (1995).

Thus even with the presence and absence of self-injury dichotomy there is variability in terms of what frequency of self-injury is classified as presence. Similarly there is inconsistency in the categories of self-injury used in research studies. Although most often researchers have measured self-injury with an ordinal or continuous scale, they frequently dichotomised the variable as presence versus absence for reporting and analysis. This is often done because of the small sample of self-injurers or the minimal variability/excessive skewness of the self-injury variable.

Whilst the current studies measured self-injury as a continuous variable, the intent was to not draw significant attention to the inclusion of self-injury in the surveys

but to measure it in a way that was consistent to measurement of other coping strategies. Consistent with previous research for reporting and analysing the infrequent occurrence of self-injury, this variable was dichotomised.

A total of 152 participants (28.3%) endorsed either self-injury ideation or self-injury behaviour. Participants who ticked *sometimes*, *often* or *most of the time* in response to the item “I hurt myself on purpose” were classified as self-injurers. Self-injury ideators were identified as those with a positive response to “I think about or feel like hurting myself on purpose” and did not endorse the item “I hurt myself on purpose”. There were three groups of participants in Study 1A who were identified from these two survey items: self-injurers ( $n = 86$ , 50% female), self-injury ideators ( $n = 66$ , 83.3% female), and comparison participants ( $n = 385$ , 62.6% female) who did not report self-injury or self-injury ideation on the survey.

*Coping strategies.* The Children’s Coping Strategies Checklist (CCSC; Sandler et al., 1994) was used to measure participants’ frequency of use of a range of coping strategies, in response to the prompt, “When you had a problem in the last month you....”. The measure includes 45 items with response options ranging from 1 (*never*) to 4 (*most of the time*). The items form 10 subscales with four or five items each. The 10 subscales are cognitive decision making, direct problem solving, seeking understanding, positive cognitive restructuring, cognitive avoidance, avoidant action, distraction action, physical release of emotion, emotion-focused support, and problem-focused support. Example items are “Think about which things are best to do to handle the problem” (cognitive decision making), “Do something to make things better” (direct problem solving), “Try to understand it better by thinking more about it” (seeking understanding), and “You tried to notice or think about only the good things in your life” (positive cognitive restructuring). The 10 subscales yield four higher-order coping factors. The four factors, with their corresponding Cronbach’s  $\alpha$  coefficients found in previous research (Sandler et al., 1994) are active coping (.88), avoidant coping (.83), distraction (.76), and seeking social support (.90). This measure has been utilised in research conducted with Australian adolescents and scales had adequate interitem correlations with  $\alpha$  ranging from .68 to .87 (Locke, 2002; Zimmer-Gembeck & Locke, 2007) and all items had face validity when considering appropriateness for older adolescents. However, the following listed five items (and the corresponding subscales) were not included in the current survey as they had the lowest loading on the scale and the researcher aimed to keep the survey as short as possible: “Think about what would happen before I decide what to do” (cognitive decision making), “Do something in



order to get something good out of it” (direct problem solving), “Think about why it has happened” (seeking understanding), “Go bicycle riding” and “Go skateboarding riding or roller skating” (both physical release of emotions). The following interitem correlations coefficients were obtained in the current study:  $\alpha = .79$  for active coping, .43 for distraction coping, .67 for avoidant coping, and .88 for seeking social support.

To yield a perceived helpfulness score, participants were also instructed that for each coping strategy used *sometimes*, *often*, or *most* of the time, to also indicate how effective they thought the use of the coping strategy was, in that did it help him/her to solve the problem or feel better. The prompt was “Did it help?” and ranged from 1 (*not at all*) to 4 (*a lot*).

*Affect regulation.* Affect regulation was assessed with the Trait Meta Mood Scale (TMMS, Salovey et al., 1995). The TMMS is designed to measure relatively stable individual differences in attending to moods and emotions, discriminating clearly among them, and regulating them in terms of changing uncomfortable emotions to comfortable emotions as well as maintaining comfortable emotions (Salovey et al., 1995). The 30-item measure has three subscales: (a) attention to feelings (13 items, e.g., “I pay a lot of attention to how I feel”), (b) clarity of feelings (11 items, e.g., “I am usually very clear about my feelings”), and (c) feeling repair (i.e., attempts to repair unpleasant moods or maintain pleasant ones; 6 items, e.g., “Although I am sometimes sad, I have a mostly optimistic outlook”) (referred to as feeling repair in this study). Participants responded to each item on a five-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Possible scores range from 13 to 65 for attention, 11 to 55 for clarity, and 6 to 30 for mood repair, with higher scores on each subscale indicating higher attention, clarity or mood repair. The TMMS has been reported to have high coefficient alphas, .86, .88, and .82 for attention, clarity, and mood repair, respectively (Salovey et al., 1995). While this measure was originally developed for use with adults it has been utilised with Australian adolescents as a 23-item version (Moriarty, Stough, Tidmarsh, Eger, & Dennison, 2001). Also the 30-item version of the TMMS has been used by Davies et al. (1998) with USA Air Force recruits, with an average age of 19.5 years, and yielded coefficient alphas of .82, .83, and .73 for attention, clarity, and feeling repair, respectively. For the current study, interitem correlations were somewhat lower for all three subscales, but especially lower for clarity,  $\alpha = .80$  for attention, .62 for clarity, and .68 for feeling repair.

*Affect.* The Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) consists of two ten-item scales designed to measure positive and

negative affect in individuals. The PANAS asks the participants to rate on a 5-point scale the extent to which they have experienced each mood state (e.g., upset, irritable, proud, and excited) during a specified time frame; the scale ranges from 1 (*very slightly or not at all*) to 5 (*very much*). When used with short-term instructions, such as today or right now, the PANAS is sensitive to fluctuations in mood, and exhibits trait-like stability when longer-term instructions are used, such as in the past year or generally (Watson et al., 1988). To be consistent with a diary study also completed as part of this program of research (Study 2B), participants were asked to think about the ‘last 24 hours’ when completing this measure. Internal consistency reliability has been reported to range from .86 to .90 for the positive affect scale, and from .84 to .87 for the negative affect scale (Watson et al., 1988). A two-factor solution has been found to best describe the structure of the PANAS. Interitem correlations in the current study were Cronbach’s  $\alpha = .85$  for positive affect and  $\alpha = .80$  for negative affect.

*Daily hassles.* A measure of daily hassles was developed using items taken from the Daily Life Stressors Scale (DLSS; Kearney, Drabman, & Beasley, 1993) and the Daily Stress Inventory (DSI; Brantley, Waggoner, Jones, & Rappaport, 1987). The DLSS is a 30-item measure of the severity of everyday stressful events and aversive arousal for persons aged 7 to 17 years. The scale measures the total distress due to negative life events within the past week, with responses from 0 (*not at all stressful*) to 4 (*very much stressful*). The total score on the DLSS ranges from 0 to 120, with higher scores representing greater stress in day-to-day situations. If an event did not occur, it is recorded as 0. In past research, the overall measure and all items, excluding one item (i.e., “it is hard for me to come home from school”) were found to be moderately but significantly reliable across a one-week period, with the total score test-retest reliability as .74 (Kearney et al., 1993). The DSI is a 58-item self-report measure developed for use with adults that requires the person to indicate events that they have experienced in the past 24 hours (Brantley et al., 1987).

In the current study, the DLSS and DSI scales were combined and slightly modified. Participants indicated whether during the *last week* each event did not occur (0) or, if an event did occur, participants rated the event from 1 (*not at all stressful*) to 4 (*very stressful*). A total of 27-items were used after deleting items that seemed more relevant for younger children or adults. An ‘other’ option was also provided for adolescent to specify hassles not included in the list. However, this other item was rarely used and was not included in the calculation of total scores. Examples of items included in the current measure of daily hassles are: “Was excluded/ignored by others”,

“Spoke in public or in front of people”, and “Felt pressured to do well”. The total daily hassles score had a possible range of 0 to 108, which was a combined score of frequency of daily hassles and perceived stressfulness.

*Neuroticism.* Neuroticism was measured with the 12-item neuroticism scale of the NEO Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992). Response options ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The NEO-FFI is a widely used personality measure, and its reliability and validity have been well established (Costa & McCrae, 1992). Examples of neuroticism items are: “I rarely feel fearful or anxious”, and “I am seldom sad or depressed”. Higher scores on this scale are indicative of higher neuroticism. In the current study, the interitem correlation of the Neuroticism scale was adequate,  $\alpha = .83$ .

*Demographics.* Demographic questions included items that assessed participants’ age, date of birth, gender, whom he/she resided with, race/ethnicity, education of parents, siblings, and number of close friends.

### *Procedure*

Ethics approval was obtained from the Human Subjects Review Board (HREC) of Griffith University prior to data collection. First year university students were approached during Orientation Week (O-week, the week before classes began), and during a first year cognitive psychology subject lecture. Participants were initially given verbal information regarding the research project and, if they expressed interest, they were provided with additional written information. This information informed participants that their responses would remain confidential, and that it was their right to withdraw at any time from the study without incurring penalties. After consent was given, participants were asked to complete the package of questionnaires. Students approached in O-Week usually completed questionnaires either in lecture theatres or lecture theatre foyers, and were requested to complete surveys privately. The participants who were enrolled in the first year psychology subject attended scheduled group data collection times in an assigned room at the university. The researcher and assistants remained present while participants completed the questionnaires, which required 20 to 30 minutes for completion.

Psychology students received credit towards subject completion for participation in the research study, whilst non-psychology students received a small token (i.e., chocolate bar) at the time of survey completion. Each participant received information containing agencies, people and contact numbers they could utilise if the questionnaires

evoked distress or concern. Participants could choose to complete the surveys either anonymously, or to provide contact details permitting the researcher to seek their consent for participation in later parts of the research project. Approximately 60% of participants provided contact details.

## Results

### *Preliminary Analyses and Analytic Plan*

Prior to conducting tests of hypotheses, the data were inspected to determine accuracy of data entry and potential outliers. Initial examination of distributions in conjunction with formulae proposed by Tabachnick & Fidell (2001) detected no potential univariate outliers. In addition, the key assumption of the analyses was evaluated, namely that of normality of distributions (i.e., skewness and kurtosis).

Overall, the preliminary screening detected some violations in the normality assumption. While ANOVAs can be robust to violation of some statistical assumptions, the validity of the results remains dependent on the degree to which the data meet the assumptions (Harwell & Serlin, 1997). Alternative statistics to parametric tests are recommended when violations of assumptions are observed. One such alternative is using a nonparametric statistical method, which does not assume normality of distributions and converts raw scores to ranks. The smallest score is replaced by rank 1, the second smallest is replaced by rank 2, and the largest score is replaced by rank  $N$ . Nonparametric statistical methods are advantageous as they make fewer assumptions about the distributions of the data. Although some criticism has been made that nonparametric procedures are not as robust as their parametric equivalent (e.g., Roberts & Russo, 1999), Harwell (1988) argues that when the assumption of normality is violated or there is unequal variance between groups, nonparametric tests will maximise power. Given the violations of some assumptions of normality and the differences in the group sizes, hypotheses were tested using three sample Kruskal-Wallis tests, which are the non-parametric statistical analysis comparable to the between-groups ANOVA. The Mann-Whitney U test was utilised to conduct post-hoc pairwise comparisons. Table 3.1 provides descriptive statistics for all measured variables in Study 1. Table 3.2 contains the correlations between variables in this study.

Table 3.1

*Descriptive Statistics of All Measured Variables in Study 1*

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Median
Positive affect	537	31.71	7.09	32.00
Negative affect	536	20.15	6.43	20.00
Attention to feelings	533	49.08	7.64	51.00
Clarity of feelings	533	32.56	5.13	32.00
Feeling repair	533	21.59	3.91	23.00
Neuroticism	533	22.00	7.78	25.00
Daily hassles, frequency	537	15.38	5.81	15.00
Daily hassles, stressfulness	535	37.98	20.91	37.50
Daily hassles, frequency X stressfulness	535	686.48	568.67	564.50
Active coping, frequency	535	2.38	.51	2.52
Active coping, helpfulness	523	2.60	.45	2.54
Distraction coping, frequency	535	2.37	.70	2.47
Distraction coping, helpfulness	520	2.83	.61	3.00
Avoidance coping, frequency	535	2.34	.57	2.75
Avoidance coping, helpfulness	513	2.21	.54	2.13
Seeking social support, frequency	535	2.00	.59	1.81
Seeking social support, helpfulness	502	2.81	.62	2.83
Coping count <sup>a</sup>	533	15.36	7.02	15.00

<sup>a</sup> Count of coping strategies used 'often' or 'most of the time'

Table 3.2

*Pearson Correlations Between All Independent Variables in Study 1A*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Positive affect	---														
2. Negative affect	.12 **	---													
3. Attention to feelings	.10 *	-.01	---												
4. Clarity of feelings	.14 **	-.25 **	.22 **	---											
5. Feeling repair	.33 **	-.10 *	.40 **	.36 **	---										
6. Neuroticism	-.17 **	.38 **	.10 *	-.39 **	-.23 **	---									
7. Daily hassles, frequency	.08 *	.31 **	-.09 *	-.20 **	-.15 **	.22 **	---								
8. Daily hassles, stressfulness	.11 *	.44 **	-.04	-.22 **	-.14 **	.35 **	.84 **	---							
9. Active coping, frequency	.34 **	.18 **	.17 **	.03	.26 **	.05	.28 **	.27 **	---						
10. Active coping, helpfulness	.28 **	-.06	.09 *	.22 **	.23 **	-.22 **	-.00	-.03	.46 **	---					
11. Distraction coping, frequency	.30 **	.06	-.06	-.08	.06	-.03	.26 **	.25 **	.41 **	.24 **	---				
12. Distraction coping, helpfulness	.20 **	-.05	.01	-.05	.09 *	-.08	.06	.09 *	.14 **	.29 **	.53 **	---			
13. Avoidance coping, frequency	.04	.27 **	.07	-.27 **	-.07	.41 **	.31 **	.37 **	.40 **	-.02	.31 **	.10 *	---		
14. Avoidance coping, helpfulness	.07	.06	-.09 *	.04	-.03	-.02	.11 *	.11 *	.20 **	.39 **	.27 **	.36 **	.23 **	---	
15. Seeking social support, frequency	.21 **	.18 **	.08	-.03	.11 **	.02	.23 **	.23 **	.51 **	.19 **	.28 **	.09 *	.28 **	.17 **	---
16. Seeking social support, helpfulness	.10 *	.02	.18 **	.09	.16 **	-.03	-.16 **	-.04	.18 **	.32 **	.01	.15 **	-.03	.17 **	.26 **

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

*Comparison of Self-Injurers, Self-Injury Ideators, and Other University Students*

Self-injurers, self-injury ideators, and comparison university students were compared to identify differences in affect-related constructs, neuroticism, stress, and coping. Overall, self-injurers reported significantly more problems with affect regulation, had more daily hassles, and used avoidance and distraction coping more frequently than the university comparison participants (see Table 3.3). Additionally, self-injurers paid significantly less attention to feelings, had more difficulties with feeling repair, used social support less often to cope, and perceived social support as less helpful when utilised, compared to self-injury ideators.

*Affect and affect regulation.* Partially supporting hypotheses, the results of the Kruskal-Wallis test indicated that significant differences did exist in negative affect among the three groups (see Table 3.3). Further examination with the Mann-Whitney U test showed that both the self-injury ideators and self-injurers were higher in negative affect than the comparison group, Wilcoxon Ranks = 81895.0 and 83486.0, both  $p < .01$ , respectively. The self-injurers and self-injury ideation group did not significantly differ on any measure of affect. There was no significant difference between the three groups for positive affect.

Significant groups differences were identified for affect regulation. Post-hoc analyses determined that compared to the self-injurers, both the self-injury ideators and the comparison group reported paying significantly more attention to feelings, Wilcoxon Ranks = 4994.5 and 11171.0, both  $p < .01$ , respectively, whereas the self-injury ideation and university comparison groups did not differ significantly in their attention paid to feelings, Wilcoxon Rank = 13964.5,  $p > .05$ . The three groups also significantly differed on clarity of feelings. As expected, the self-injurers and self-injury ideators had more difficulty with clarity of feelings than the comparison group, Wilcoxon Rank = 12422.5 and 14788.50, both  $p < .01$ , respectively. Self-injurers and self-injury ideators did not significantly differ in clarity of feelings, Wilcoxon Rank = 6021.0,  $p > .05$ . Also as expected, the self-injurers were significantly lower in feeling repair than the self-injury ideators and the comparison group, Wilcoxon Rank = 5492.0 and 10518.5, respectively, both  $p < .01$ . Additionally, the self-injury ideation and comparison groups differed in feeling repair, Wilcoxon Rank = 12258.0,  $p < .05$ , with self-injury ideators lower in feeling repair than the comparison group.

These results support the hypotheses that self-injurers have more difficulty with first, clarifying their feelings, and second, repairing their feelings. Contrary to the

hypothesis self-injurers were found to pay less attention to their feelings. The findings indicate that self-injury ideators were similar to self-injurers in their difficulty with clarity of feelings and experience of negative affect, and significantly different to both the self-injurers and the comparison group in their ability to repair or sustain their feelings.

*Stress.* The hypotheses that self-injurers will experience more daily hassles and perceive them as more stressful were supported (see Table 3.4). Post-hoc analyses determined that self-injurers, compared to the self-injury ideators and comparison group, reported significantly more daily hassles, Wilcoxon Ranks = 4362.5 and 81517, respectively, both  $p < .01$ . Self-injury ideators also reported significantly more daily hassles than the comparison group, Wilcoxon Rank = 81833.0,  $p < .01$ . Self-injurers perceived significantly more stress from the daily hassles than the comparison group (Wilcoxon Rank = 81833.5,  $p < .01$ ), but not the self-injury ideators. Also the self-injury ideators perceived significantly more stress from the daily hassles than the comparison group, Wilcoxon Rank = 80182.0,  $p < .01$ .

Further analyses were conducted to compare experiences of daily hassles in particular domains. Overall, self-injurers and self-injury ideators reported significantly more daily hassles than other university students in all domains that were examined.

In relation to interpersonal daily hassles (e.g., “had an argument with a friend”, “did not hear from someone I had expected to hear from”), a significant group difference was found for both the number of hassles and associated perceived stress, Kruskal-Wallis test = 43.4 (with an eta value of .09), and 49.7 (with an eta value of .11), respectively, both  $p < .01$ . Post-hoc analyses found that self-injurers ( $M = 8.2$ ,  $SD = 3.2$ ) reported significantly more interpersonal hassles than both the self-injury ideators ( $M = 7.1$ ,  $SD = 3.0$ ) and comparison group ( $M = 5.9$ ,  $SD = 2.8$ ), Wilcoxon Ranks = 4421.5,  $p < .05$ , and 82149.0, both  $p < .01$ , respectively. Also self-injury ideators reported significantly more interpersonal daily hassles than the comparison group, Wilcoxon Rank = 82391.5,  $p < .01$ . In addition, self-injurers ( $M = 21.2$ ,  $SD = 12.0$ ) also perceived significantly more stress for the interpersonal hassles, compared to the comparison group ( $M = 13.2$ ,  $SD = 8.7$ ), Wilcoxon Rank = 82322.5,  $p < .05$ , and self-injury ideators ( $M = 19.5$ ,  $SD = 11.2$ ) also perceived more stress than the comparison group, Wilcoxon Rank = 80934.5,  $p < .01$ . The self-injurers and self-injury ideators did not significantly differ in their perception of stress of interpersonal daily hassles.

In consideration of intrapersonal daily hassles (e.g., “was embarrassed”, “did something I did not want to do”), there were group differences for both the reporting of



these types of hassles and the associated stress, Kruskal-Wallis = 37.4 (with an eta value of .06), and 39.5 (with an eta value of .07), respectively, both  $p < .01$ . Both self-injurers ( $M = 7.0$ ,  $SD = 2.0$ ) and self-injury ideators ( $M = 6.6$ ,  $SD = 2.1$ ) reported significantly more hassles, compared to the comparison group ( $M = 5.6$ ,  $SD = 2.2$ ), Wilcoxon Ranks = 83016.0 and 81973.0, respectively, both  $p < .01$ . Both the self-injurers ( $M = 19.5$ ,  $SD = 8.3$ ) and self-injury ideators ( $M = 18.6$ ,  $SD = 8.5$ ) reported significantly more perceived stress in relation to the intrapersonal daily hassles, than the comparison group ( $M = 14.3$ ,  $SD = 8.1$ ), Wilcoxon Ranks = 83055.0 and 81413.0, respectively, both  $p < .01$ . The self-injurers and self-injury ideators did not differ in their reporting of intrapersonal daily hassles or associated stressfulness.

Significant group differences were found for the reporting of task daily hassles (e.g., “interrupted during task/activity”, “had difficulty understanding something”) and associated stress, Kruskal-Wallis = 27.9 (with an eta value of .05), and 25.7 (with a eta value of .06), respectively, both  $p < .01$ . Post-hoc analyses determined that both self-injurers ( $M = 3.6$ ,  $SD = 1.6$ ) and self-injury ideators ( $M = 3.3$ ,  $SD = 1.4$ ) reported significantly more task hassles than the comparison group ( $M = 2.7$ ,  $SD = 1.4$ ), Wilcoxon Ranks = 83727.0 and 82790.0, respectively, both  $p < .01$ . Also self-injurers ( $M = 8.9$ ,  $SD = 5.9$ ) and self-injury ideators ( $M = 8.8$ ,  $SD = 4.6$ ) both reported significantly more perceived stress from task hassles than the comparison group ( $M = 6.3$ ,  $SD = 4.4$ ), Wilcoxon Ranks = 85066.5 and 81362.5, respectively, both  $p < .01$ . The self-injurers and self-injury ideators did not differ in their reporting of task daily hassles and associated perceived stress.

The combined score of daily hassles experienced with associated perceived stress indicated significant group differences. Post-hoc analyses determined that both self-injurers and self-injury ideators were significantly higher on the combination of the number of daily hassles and the associated perceived stress than did the comparison group, Wilcoxon Rank = 81313.5 and 80519.0, respectively, both  $p < .01$ . The self-injurers and self-injury ideators did not significantly differ on the daily hassles combination score.

In sum the further analyses that were conducted to compare experiences of daily hassles in particular domains identified significant differences such that self-injurers reported significantly more interpersonal, intrapersonal, and task hassles than both the self-injury ideation and the university comparison groups.

*Coping.* The results partially support the hypothesis that self-injurers would use more avoidance and distraction coping strategies, and fewer active coping and seeking

social support coping strategies. In general, self-injurers used more avoidance, distraction and support seeking strategies for coping, and perceived avoidance strategies as more helpful and seeking social support strategies as less helpful, than the comparison group (see Table 3.5). In addition both the self-injurers and the self-injury ideators utilised significantly more coping strategies than the comparison group, Wilcoxon Rank = 83552 and 81947.5, respectively, both  $p < .01$ . The self-injurers and self-injury ideators did not significantly differ in the number of coping strategies they used.

More specifically, group differences were identified for avoidance coping. Close examination revealed significant group differences for utilisation of avoidance coping and perceived helpfulness of these coping strategies. Post-hoc analyses found that both the self-injurers and self-injury ideators used significantly more avoidance coping than the comparison group, Wilcoxon Ranks = 84559.0 and 81107.5, both  $p < .01$ , respectively. The self-injurers and self-injury ideators did not significantly differ in their use of avoidance coping strategies. In terms of perceived helpfulness of avoidance coping, the only group difference was found between the self-injurers and the comparison group, Wilcoxon Rank = 78442.0,  $p < .01$ .

Significant group differences were identified for the use of the avoidance coping types of cognitive avoidance and avoidant actions, Kruskal-Wallis = 27.6 (with an eta value of .05), and 22.1 (with an eta value of .04), respectively, both  $p < .01$ . Both the self-injurers and self-injury ideators (both  $M = 2.5$ ,  $SD = .6$ ) utilised avoidant actions significantly more than the comparison group ( $M = 2.2$ ,  $SD = .7$ ), Wilcoxon Ranks = 84407.0 and 81712.5, respectively, both  $p < .01$ . Similarly, both the self-injurers ( $M = 2.5$ ,  $SD = .6$ ) and self-injury ideators ( $M = 2.7$ ,  $SD = .6$ ) used significantly more cognitive avoidance than the comparison group ( $M = 2.3$ ,  $SD = .7$ ), Wilcoxon Ranks = 86146.0 and 81279.5, respectively, both  $p < .01$ . There was a significant group difference in the perceived helpfulness of cognitive avoidance strategies, Kruskal-Wallis = 17.0,  $p < .01$ , with an eta value of .05. Post-hoc analyses found that self-injurers ( $M = 2.4$ ,  $SD = .8$ ) perceiving such strategies as more helpful than the comparison group ( $M = 2.0$ ,  $SD = .6$ ), Wilcoxon Rank = 73177.5,  $p < .01$ . The self-injurers and self-injury ideators did not differ in the use of avoidant actions or cognitive avoidance, or associated perceived helpfulness of either strategy. There was no group difference for the perceived helpfulness of avoidant actions.

In consideration of the aspect of distraction coping, significant group differences were identified for the reported utilisation of these strategies. Self-injurers reported

utilising distraction coping significantly more than both the self-injury ideation and comparison groups, Wilcoxon Ranks = 4364.0,  $p < .05$  and 84427.5,  $p < .01$ , respectively. The self-injury ideation and comparison groups were not significantly different in use of distraction coping, Wilcoxon Rank = 84521.0,  $p > .05$ . The three groups were not significantly different in their perceived helpfulness of distraction strategies to cope.

A type of distraction coping called distracting actions yielded significant differences between the three groups, Kruskal-Wallis = 14.8,  $p < .05$ , with an eta value of .03. Post-hoc analyses determined that both the self-injurers ( $M = 2.5$ ,  $SD = .6$ ) and self-injury ideators ( $M = 2.5$ ,  $SD = .6$ ) utilised distracting actions significantly more than the comparison group ( $M = 2.3$ ,  $SD = .6$ ), Wilcoxon Ranks = 85294.0,  $p < .01$ , and 83126.0,  $p < .05$ , respectively. The self-injurers and self-injury ideators did not differ in their use of distracting actions. A second aspect of distraction called physical release of emotions also differed between the groups, Kruskal-Wallis = 13.4,  $p < .01$ , with an eta value of .02. Self-injurers ( $M = 2.7$ ,  $SD = .9$ ) used physical release of emotion significantly more than both the self-injury ideators ( $M = 2.2$ ,  $SD = 1.1$ ) and the comparison group ( $M = 2.3$ ,  $SD = 1.1$ ), Wilcoxon Ranks = 4261.0 and 84862.0, respectively, both  $p < .01$ . The self-injury ideators and comparison group did not differ in their use of physical release of emotions.

Another aspect of distraction coping that yielded significant group differences is the use of expressing feelings, Kruskal-Wallis = 78.2,  $p < .01$ , with an eta value of .16. Self-injurers ( $M = 2.1$ ,  $SD = .7$ ) were found to utilise this strategy significantly more than both the self-injury ideators ( $M = 1.9$ ,  $SD = .7$ ) and the comparison group ( $M = 1.5$ ,  $SD = .5$ ), Wilcoxon Ranks = 4476.0,  $p < .05$  and 80293.5,  $p < .01$ , respectively. The self-injury ideators also differed significantly from the comparison group in their use of expressing, Wilcoxon Rank = 80669.0,  $p < .01$ . There were no overall group differences for the perceived helpfulness of any of the three types of distraction coping.

In relation to active coping, significant differences were found for the aspect of perceived helpfulness of active coping strategies employed. Post-hoc analyses found that both the self-injurers and self-injury ideators reported active coping strategies as less helpful than the comparison group, Wilcoxon Ranks = 16060.5 and 11421.0, respectively, both  $p < .01$ . The self-injury and self-injury ideation groups did not differ in their perceived helpfulness of active coping strategies, Wilcoxon Rank = 4712.0,  $p > .05$ .

Post-hoc analyses identified some differences between groups for the subtypes of active coping. One aspect of active coping is cognitive decision making, and its perceived helpfulness yielded a significant group difference, Kruskal-Wallis = 7.0,  $p < .05$ , with an eta value of .01. Self-injury ideators ( $M = 2.5$ ,  $SD = .6$ ) were significantly lower than the comparison group ( $M = 2.7$ ,  $SD = .6$ ) in their perceived helpfulness of cognitive decision making, Wilcoxon Rank = 11461.5,  $p < .05$ .

A second aspect of active coping that yielded significant group differences is perceived helpfulness of direct problem solving, Kruskal-Wallis = 18.7,  $p < .01$ , with an eta value of .04. Both the self-injurers ( $M = 2.5$ ,  $SD = .7$ ) and self-injury ideators ( $M = 2.6$ ,  $SD = .6$ ) perceived direct problem solving as significantly less helpful than the comparison group ( $M = 2.8$ ,  $SD = .6$ ), Wilcoxon Ranks = 14693.5 and 11441.0, respectively, both  $p < .01$ . The self-injurers and self-injury ideators did not significantly differ in their perceived helpfulness of direct problem solving.

The use of seeking understanding, a third aspect of active coping differed significantly between the groups, Kruskal-Wallis = 23.5,  $p < .01$ , with an eta value of .04. Both the self-injurers ( $M = 2.4$ ,  $SD = .7$ ) and self-injury ideators ( $M = 2.4$ ,  $SD = .5$ ) reported utilising seeking understanding significantly more than the comparison group ( $M = 2.1$ ,  $SD = .6$ ), Wilcoxon Ranks = 85103.5 and 81682.0, respectively, both  $p < .01$ . The self-injurers and self-injury ideators did not significantly differ in their use of seeking understanding.

An overall group difference was identified for the use of positive cognitive restructuring, Kruskal-Wallis = 6.0,  $p < .05$ , with an eta value of .01. Self-injurers ( $M = 2.5$ ,  $SD = .5$ ) reported using positive cognitive restructuring significantly more than the comparison group ( $M = 2.3$ ,  $SD = .6$ ), Wilcoxon Rank = 86429.5,  $p < .05$ . There were no group differences for the perceived helpfulness of seeking understanding and positive cognitive decision making, and the use of cognitive decision making and direct problem solving.

Significant group differences were identified for the utilisation and perceived helpfulness of seeking social support. Self-injurers reported utilising these strategies significantly more often than both the self-injury ideators and the comparison group, Wilcoxon Ranks = 4388.5,  $p < .05$ , and 84950.5,  $p < .01$ , respectively. However the self-injurers perceived these seeking social support strategies as significantly less helpfulness than both the self-injury ideators and the comparison group, Wilcoxon Ranks = 5336.5,  $p < .05$ , and 14766.5,  $p < .01$ , respectively.

Seeking social support strategies can be separated into two types, problem focused and emotion focused. A significant group difference was found for the use of problem-focused support seeking, Kruskal-Wallis = 15.6,  $p < .01$ , with an eta value of .03. Self-injurers ( $M = 2.3$ ,  $SD = .6$ ) used significantly more problem focused support than both the self-injury ideators and the comparison group (both  $M = 2.0$ ,  $SD = .6$ ), Wilcoxon Ranks = 4359.5,  $p < .05$ , and 84749,  $p < .01$ , respectively. Significant group differences were also identified for the use of emotion focused support seeking and its perceived helpfulness, Kruskal-Wallis = 7.7,  $p < .05$  (with an eta value of .01), and 12.9,  $p < .01$  (with an eta value of .04). Post-hoc analyses found that self-injurers ( $M = 2.2$ ,  $SD = .6$ ) used significantly more emotion focused support than the comparison group ( $M = 2.0$ ,  $SD = .6$ ), Wilcoxon Rank = 86028.5,  $p < .01$ . In relation to perceived helpfulness of emotion focused support, self-injurers ( $M = 2.5$ ,  $SD = .7$ ) perceived the strategies as significantly less helpful than both the self-injury ideators ( $M = 2.8$ ,  $SD = .7$ ) and comparison group ( $M = 2.9$ ,  $SD = .6$ ), Wilcoxon Ranks = 5095.5,  $p < .05$ , and 13153.0,  $p < .01$ , respectively. No group difference was found for the perceived helpfulness of problem focused support.

*Neuroticism.* Group differences were also identified for neuroticism (see Table 3.3). The self-injury ideators were significantly higher in neuroticism than both the self-injurers and the comparison group, Wilcoxon Ranks = 5587.0 and 79356.0, respectively, both  $p < .01$ . The self-injurers and the comparison group also were significantly different in levels of neuroticism, Wilcoxon Rank = 86197.5,  $p < .05$ , with the self-injurers higher in neuroticism than the comparison group. This supports the hypothesis that self-injurers are higher in neuroticism than university comparison students, however the self-injury ideation group was unexpectedly higher in neuroticism than the self-injurers.

*Summary of effect sizes.* While a large number of statistical significant differences were identified, only three measures of affect regulation, the combined measure of the number of daily hassles and associated perceived stressfulness, the combined measure of interpersonal daily hassles and associated perceived helpfulness, perceived stressfulness of interpersonal daily hassles, perceived stressfulness of daily hassles, total number of daily hassles, and frequency of expressing feelings used to cope had effect sizes of .10 or greater. It appears that the addition of the number of interpersonal daily hassles (i.e., total, and interpersonal) to perceived stressfulness only slightly strengthened the effect sizes.

Table 3.3  
*Results of Nonparametric Tests Comparing Self-Injury, Ideation and the Comparison Group Participants on Affect Related Variables*

	Group	N	M	SD	Median	Kruskal-Wallis test	Partial Eta Squared
Positive Affect	Self-injurers	86	31.6	7.2	32.0	5.5	.01
	Self-injury ideators	66	30.0	6.0	30.0		
	Comparison	381	32.1	7.2	33.0		
Negative Affect	Self-injurers	86	23.2	7.3	21.5	27.6 **	.06
	Self-injury ideators	66	21.8	6.0	21.5		
	Comparison	380	19.2	6.0	19.0		
Attention to Feelings	Self-injurers	85	43.5	6.3	43.00	61.1 **	.10
	Self-injury ideators	65	49.6	7.4	49.0		
	Comparison	381	50.3	7.4	50.0		
Clarity of Feelings	Self-injurers	85	29.7	4.0	30.00	52.8 **	.10
	Self-injury ideators	65	30.7	4.9	31.0		
	Comparison	381	33.6	5.03	33.0		
Feeling Repair	Self-injurers	85	18.6	3.5	18.0	69.2 **	.13
	Self-injury ideators	65	20.9	4.5	21.0		
	Comparison	381	22.4	3.5	23.0		
Neuroticism	Self-injurers	85	23.3	7.7	24.0	38.8 **	.08
	Self-injury ideators	65	27.3	7.2	29.0		
	Comparison	381	20.8	7.5	21.0		

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

Table 3.4

*Results of Nonparametric Tests Comparing Self-Injury, Ideation and the Comparison Group Participants on Daily Hassles Variables*

	Group	N	M	SD	Median	Kruskal-Wallis test	Partial Eta Squared
Total daily hassles, frequency	Self-injurers	86	19.2	6.3	20.5	53.0 **	.10
	Self-injury ideators	66	17.0	5.6	16.5		
	Comparison	381	14.3	5.3	14.0		
Total daily hassles, stressfulness	Self-injurers	86	50.6	24.7	47.5	53.3 **	.11
	Self-injury ideators	66	47.0	21.1	47.0		
	Comparison	381	33.7	18.2	31.0		
Daily Hassles frequency X stressfulness	Self-injurers	86	1095.6	715.8	1063.0	56.2 **	.14
	Self-injury ideators	66	892.6	612.4	766.0		
	Comparison	380	561.3	462.0	462.0		

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

Table 3.5  
*Results of Nonparametric Tests Comparing Self-Injury, Ideation and the Comparison Group Participants on Coping Variables*

	Group	N	M	SD	Median	Kruskal-Wallis test	Partial Eta Squared
Active Coping, frequency	Self-injurers	86	2.5	.5	2.5	5.7	.01
	Self-injury ideators	66	2.4	.4	2.3		
	Comparison	381	2.4	.5	2.4		
Active Coping, helpfulness	Self-injurers	83	2.5	.5	2.4	13.1 **	.02
	Self-injury ideators	64	2.5	.4	2.5		
	Comparison	374	2.6	.4	2.6		
Distraction Coping, frequency	Self-injurers	86	2.6	.6	2.6	17.8 **	.03
	Self-injury ideators	66	2.4	.6	2.3		
	Comparison	381	2.3	.7	2.3		
Distraction Coping, helpfulness	Self-injurers	81	2.8	.6	2.9	.5	.00
	Self-injury ideators	64	2.9	.5	2.9		
	Comparison	373	2.8	.6	2.8		
Avoidance Coping, frequency	Self-injurers	86	2.5	.4	2.5	30.9 **	.06
	Self-injury ideators	66	2.6	.6	2.6		
	Comparison	381	2.3	.6	2.6		
Avoidance Coping, helpfulness	Self-injurers	83	2.4	.6	2.3	11.2 **	.02
	Self-injury ideators	64	2.2	.5	2.2		
	Comparison	365	2.2	.5	2.1		
Seeking Social Support Coping, frequency	Self-injurers	86	2.2	.6	2.3	14.1 **	.02
	Self-injury ideators	66	2.0	.5	1.9		
	Comparison	381	2.0	.6	1.9		
Seeking Social Support Coping, helpfulness	Self-injurers	81	2.6	.7	2.6	8.7 *	.02
	Self-injury ideators	63	2.9	.6	2.8		
	Comparison	356	2.9	.6	2.8		
Coping count <sup>a</sup>	Self-injurers	86	18.6	7.2	19.0	32.3 **	.06
	Self-injury ideators	66	17.5	6.4	18.0		
	Comparison	381	14.3	6.8	15.0		

\*  $p < .05$ . \*\*  $p < .01$ . <sup>a</sup> Count of coping strategies used 'often' or 'most of the time'.



All three aspects of affect regulation (i.e., attention to feelings, clarity of feelings, and feeling repair) had effect sizes of .10 (see Table 3.3), while the combination of the number of daily hassles with perceived stressfulness had an effect size of .14, the combined score for number of interpersonal daily hassles and associated perceived stressfulness had an effect size of .12 (see Table 3.4), and the frequency of expression feelings to cope had an effect size of .16 (see Table 3.5).

Binary logistic regression analyses were to be performed with self-injury as the outcome, to test a number of predictive models. However further statistics to test hypotheses relating to prediction of self-injury were deemed inappropriate and were not performed due to the small number of significant comparisons. Furthermore when group differences were identified, despite being statistically significant, they only yielded small effect sizes.

### Study 1B

The purpose of Study 1B was to describe the university students who were first identified as engaging in self-injury behaviour from the survey in Study 1A and were subsequently interviewed about their self-injury behaviours and verified as self-injurers. Study 1B presents a qualitative, descriptive analysis of this group.

#### *Research Questions*

The current investigation was guided by the following questions:

1. What were the perceived precipitants of self-injury among first year university students who had a recent history of self-injury behaviours?
2. Are self-injuring participants' perceptions of what constitutes self-injury consistent with definitions and conceptualisations of self-injury utilised within the empirical research literature?
3. Are the participants who have self-injured within the previous 12 months functioning worse, as indicated by the survey measures, than the participants who have self-injured yet not in the previous 12 months?
4. What factors differentiate those participants who are have self-injured within the last 12 months, from those who have self-injured yet not in the preceding 12 months?

## Method

### *Participants*

*Sampling.* Individuals who engaged in self-injury were identified from a larger survey completed in Study 1A to participate in an interview and to complete additional questionnaires (see Method of Study 1A). In addition, to be able to identify a matched (by age, gender and current living arrangement) comparison group of students who reported no self-injury behaviour and no thoughts of self-injury, 75 of these students also were selected to complete the same additional questionnaires. The comparison group will be described in more detail in Study 1C.

A total of 152 (28.3%) of the 537 students who were surveyed indicated a history of either self-injury ideation or self-injury behaviours from the larger sample of students surveyed. Eighty-four of these 152 participants provided contact details, thereby agreeing to be approached regarding further participation in the research. Of these 84 students, 39 indicated on the survey that they had engaged in self-injury behaviours, and 45 indicated a history of self-injury ideation in response to stress during the past month.

Overall, 48 students (57.1% of the 84) with a history of self-injury behaviour or ideation participated in the interview. Nineteen participants declined taking part in the interview, and a further 17 individuals could not be contacted. At the time of interview, 25 of the 48 participants also reported self-injurious behaviour, 13 reported self-injury ideation only, seven denied any self-injury thoughts or behaviours during the interview, and three participants reported self-injury by eating related behaviours only (e.g., restricting food intake, and purging). Thus self-injury could be verified with the interview in 4.67% of the total sample.

*Rationale for sampling.* Consistent with previous research (i.e., Briere & Gil, 1998) and with the specific purpose of trying to distinguish self-injury without suicidal intent from behaviour that was clearly suicidal in nature, a range of behaviours were included, although participants engaging in self-injurious behaviour with suicidal intent were excluded. Participants who reported cutting, burning, scratching, self-hitting, pinching, biting, hitting objects, and taking drugs or pills were included, if the participant reported none or low suicidal intent for the behaviour. Participants engaging in self-starvation, chronic alcohol ingestion, premature termination of medical intervention, recklessness, and emotional derogation were excluded if they did not result

in direct physical harm, or alternatively, if the participant reported suicidal motivation for the behaviour.

While a small number of studies have included disordered eating as a subtype within the realm of self-injury (e.g., Laye-Gindhu & Schonert-Reichl, 2005), the majority of the self-injury research does not include individuals when the only self-injury behaviour is disordered eating (e.g., Briere & Gil, 1998; Ross & Heath, 2003). Subsequently the three participants with disordered eating and no other self-injurious behaviour history were excluded from the analysis in the current study on the basis that disordered eating results in indirect, rather than direct, destruction or alteration of the body (Favazza, 1998), and the motivations for disordered eating are generally not to harm one's body (i.e., eating disorders stem from distorted body image, APA, 1994).

Favazza (1998) and Walsh and Rosen (1988) exclude overdoses and swallowing of objects or substances from the category of self-injury with the view that self-poisoning results in harm that is uncertain, unpredictable, ambiguous, basically invisible, and does not result in visible bodily disfigurement. In this research, consistent with Guertin et al. (2001) tablet overdoses and swallowing substances were not excluded if participants explained these acts as self-injury and if the participants indicated low suicidal intent for the act.

The 25 participants in this study included 20 females and 5 males. Their ages ranged from 16.8 to 18.7 years ( $M = 17.8$  years,  $SD = 17.8$ ). Participants were enrolled in a range of university degrees, such as health science based degrees, business, and engineering. One participant was enrolled in the GUEST program, which means she was still completing grade 12 at high school and also enrolled in a university subject.

With respect to ethnic background, the majority ( $n = 18$ ) of participants identified as being of white/Caucasian/ European descent, five participants were of white/Caucasian/ European and Asian descent, one participant identified being of Jamaican/Irish descent, and one participant was of Indian descent. Almost two-thirds of participants were from two biological parent families. Almost one-half of the participants' mothers had completed year 12 or less, and the other half of the participants indicated that their mother's highest level of education completed was a university degree. Three participants reported that their mothers had completed a trade certificate or diploma. Similarly almost half of the participants indicated that their father's highest level of education was a university degree, nine of the participants' fathers had completed year 12 or less, and four of the fathers had completed a trade certificate or diploma. One participant (P10) did not provide a response for her father.

The majority of mothers and almost all of the fathers were employed. Just less than one-third of the mothers and only two of the participants' fathers were not in the workforce. One father was retired, and another did not state her father's employment status. One participant's mother was deceased.

### *Questionnaire Measures*

*Anxiety.* The Screen for Child Anxiety Related Emotional Disorders (SCARED) (Birmaher et al., 1997, 1999) was used to measure anxiety. The SCARED is a self-report measure that is designed to assess symptoms of anxiety, and contains five factors that are consistent with DSM-IV (APA, 1994) diagnoses. It contains 41 items with a three-point likert-type response ranging from 0 (*not true or hardly ever true*) to 2 (*very true or often true*). High scores indicate the presence of more anxiety symptomatology. Samples items are "I worry about being as good as other people", and "When I feel frightened, it is hard to breath". Internal and test-retest reliabilities vary from moderate to excellent for the subscales and total scale and the SCARED correlates well with other internalising scales with a minimal overlap with depressive symptoms (Myers & Winters, 2002). For the current study the word 'school' was changed to 'university' for items originally of the school anxiety subscale. The subscale is therefore referred to as a university anxiety subscale rather than a school anxiety scale. The interitem correlation obtained for the current study was Cronbach's  $\alpha = .90$ .

*Depression.* The Reynolds Adolescent Depression Scale (RADS) (Reynolds, 1987a) was used to measure depressive symptomatology. The RADS does not provide a formal diagnosis of depression according to specific diagnostic criteria, but instead measures clinically relevant levels of depressive symptomatology in adolescents. The scale measures cognitive, affective, motivation, vegetative, and physical symptoms of depression. The RADS consists of 30 items, and utilises a four-point likert-type response format, ranging from 1 (*almost never*) to 4 (*most of the time*). Higher scores indicate the presence of more depressive symptomatology. This measure includes items such as "I feel like crying", and "I have trouble sleeping". The RADS shows excellent internal reliability and very good stability with various samples of community and clinical adolescents, and it correlates well with other depression measures (Reynolds & Mazza, 1998; Winters, Myers, & Proud, 2002). Furthermore the clinical cut-off score suggests good discriminant validity (Winters et al., 2002). Interitem correlation in the current study was high, Cronbach's  $\alpha = .92$ .

*Suicide ideation.* Suicide ideation was assessed with the Suicidal Ideation Questionnaire (SIQ) (Reynolds, 1987b). The SIQ is a 30-item self-report instrument designed to assess intensity and frequency of suicidal ideation during the past month. Each item is rated on a 7-point scale ranging from 0 (*I never had this thought*) to 6 (*This thought was in my mind almost every day*), and there are no subscales. The scale assesses the recency of the suicidal thought and includes items such as “I thought about how people would feel if I killed myself” and “I thought that life was not worth living”. Higher scores indicate more clinically relevant suicidal ideation. Initial standardisation of the SIQ was conducted with large normative samples. Large differences in scores have been observed between suicide attempters and the normative sample, and good sensitivity and specificity with recommended cut-off scores suggest adequate discriminant validity (Reynolds, 1987b). The SIQ is viewed as one of the best suicidality scales for use with youth (Winters et al., 2002). Interitem correlation in the current study was high, Cronbach’s  $\alpha = .95$ . Consistent with previous research for reporting and analysing the infrequent occurrence of significant suicidal ideation, this variable was dichotomised.

*Stressful life events.* Stressful life events were measured with the Life Events List – Revised (LEL-R) (Mazza & Reynolds, 1998). The LEL-R is a 16-item measure that assesses major negative life events, such as parental separation or divorce, and severe illness of a parent. The item responses are scored on a 6-point scale based on the recency of the event. The measure was revised to include 2 additional items, which yields a Cronbach’s  $\alpha$  internal consistency of .71 (Mazza & Reynolds, 1998). The measure was modified for this study to include an assessment of the perceived stressfulness of the negative impact of the event, on a 5-point scale based on the perceived stressfulness of the event from 0 (*not at all stressful*) to 4 (*very stressful*). Interitem correlations for the recency of life events and stressfulness of life events were  $\alpha = .62$  and  $.69$ , respectively, for the current study. A total combined score for life events was calculated by multiplying the total number of life events and the total perceived stressfulness of life events. In the current study, the combined life events measured yielded a Cronbach’s  $\alpha = .82$ .

*Maltreatment.* Maltreatment was assessed with the 28-item Childhood Trauma Questionnaire – Short Form (Bernstein et al., 2003). Bernstein and colleagues developed a 70-item self-report inventory that retrospectively assesses child abuse and neglect; this is called the Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998). The CTQ items ask about experiences in childhood and adolescence and are

rated on a 5-point, likert-type scale with response options ranging from 1 (*Never True*) to 5 (*Very Often True*). The CTQ has five empirically derived clinical scales – physical (e.g., “People in my family hit me so hard that it left me with bruises or marks”), sexual (e.g., “Someone tried to touch me in a sexual way, or tried to make me touch them”), and emotional abuse (e.g., “People in my family said hurtful or insulting things to me”), and physical (e.g., “I didn’t have enough to eat”) and emotional neglect (e.g., “People in my family looked out for each other” - reverse scored). In the short form of the CTQ, each type of maltreatment is represented by five items to provide adequate reliability and content coverage while substantially reducing the overall number of items in the scale. The CTQ and CTQ-Short Form also have a three-item Minimalisation/ Denial validity scale that was developed to detect the underreporting of maltreatment. The CTQ-Short Form is appropriate for use with adolescents and adults. Bernstein and colleagues’ (2003) determined sufficient coefficient alphas for the CTQ-Short Form with *adolescent psychiatric inpatients*: emotional abuse (.89), physical abuse (.86), sexual abuse (.95), emotional neglect (.89), and physical neglect (.78), as well as with *college undergraduates*: emotional abuse (.89), physical abuse (.78), sexual abuse (.72), emotional neglect (.92), and physical neglect (.60). The current study yielded the following Cronbach’s  $\alpha$ ’s for the subscales of the CTQ-Short Form: emotional abuse (.82), physical abuse (.76), sexual abuse (.89), emotional neglect (.80), and physical neglect (.60).

*Psychological control.* Psychological control was measured with the Psychological Control Scale - Youth Self Report (Barber, 1996). It consists of eight-items relating to each parent. Participants rated each parent on a 3-point scale from 1 (*not at all like him/her*) to 3 (*a lot like him/her*), as to how well each of the eight items describes their parent(s). The average of the eight items is obtained for the total score, where high scores indicate more psychological control by the parent and less tolerance for autonomy in the adolescent. Sample items are "My father is a person who would like to be able to tell me how I feel or think about things" and "My father is always trying to change how I feel or think about things". A previous study reported Cronbach’s alphas for the measure range from .80 (father’s behaviour as reported by son) to .83 (mother’s behaviour as reported by son/daughter, and father’s behaviour as reported by daughter) (Barber, 1996). For the current study the items for each parent (mother and father) were averaged separately, and then these two averages were again averaged for participants who had scores for both parents. For participants who completed this measure for one parent only the averaged mother/father score was used. The interitem correlation

obtained for the current study for the average of both mother and father psychological control was Cronbach's  $\alpha = .90$ .

*Details of self-injury behaviours and thoughts.* The semi-structured interview (Refer to Appendices A and B) utilised questions and format similar to those utilised in a study by Ross and Heath (2002). The primary purpose of the interview was to gather details of participants' self-injury behaviours and/or thoughts. In addition, an aim was to distinguish the behaviours and experiences of individuals who engaged in self-injury without or with minimal suicidal intent, from those who had engaged in self-injury as part of suicidal attempts. Interview questions included questions about the first incident of self-injury, perceived precipitants, the frequency and method of self-injury, the reasons for self-injury, and feelings associated before, during and after the most recent incident of self-injury.

### *Procedure*

The students who had indicated that they engaged in self-injury ideation or behaviour to cope with stress and comparison students (who did not indicate either) were contacted by telephone or email and invited to participate in an interview and to complete additional questionnaires. The purpose and requirements of the study were explained during the telephone call or in the email. Participants who were enrolled in a first year psychology subject received credit towards subject completion for participation in the research study. Non-psychology students were entered into a draw to win two movie tickets.

Participants with a history of self-injurious behaviour or thoughts completed the additional self-report measures in a private room on the university campus, and this was followed by a semi-structured interview. The total time taken to complete both the self-report measures and the semi-structured interview ranged between 45 to 75 minutes. The interviews and survey completion occurred between two and four months after the initial survey was completed. The comparison group were not required to participate in the interview, and these students completed the additional questionnaires in small groups in a private room on the university campus. Each interview participant received information containing agencies, people and contact numbers they could utilise if the questionnaires evoked distress or concern.

## Results

### *Frequency and Patterns of Self-Injury*

Table 3.6 provides a summary of the type of self-injury behaviours engaged in, and the frequency of self-injury for both those who have previously self-injured but reported no longer doing so and participants who current engage in self-injurious behaviour. Although self-injury was relatively uncommon in this university sample, three male students reported hurting themselves on a weekly to fortnightly basis, and six female participants self-injure at least once every two to three months.

More specifically, 60% of participants indicated that they had hurt themselves in the previous 12 months (10 females, and 5 males), and 13 participants had hurt themselves in the previous 6 months (10 females, and 3 males). The age of onset of self-injurious behaviours varied between 12 and 17 years, with a mean age of onset of 14.7 years. This mean age of onset was similar among males (14.6 years) and females (14.8 years). The majority of participants (76%) indicated they recalled initial thoughts or urges to self-injure at the same age as their first self-injury act.

The majority of participants (80%) had self-injured three or more times. Of the remaining five participants, three reported only one incident of self-injury, and two participants reported having self-injured on two occasions. Of these five participants only one participant had hurt herself in the last 12 months. Four participants (75% male) indicated that they hurt themselves as frequently as once a week ( $n = 2$ ) or approximately once a fortnight ( $n = 2$ ). For all of the participants the frequency at which they engaged in self-injury had decreased over time.

A little over half of the participants (56%) reported utilising one type of self-injury behaviour only, while 11 participants indicated that they had utilised additional self-injury behaviours with later incidents of self-injury. The majority of the 11 participants who had broadened their range of self-injury behaviours reported having hurt themselves in the previous 12 months.

### *Descriptive Interview Findings*

*Self-injury, impulsive nature of self-injury, and substance use.* While almost all (24 out of the 25) participants initially reported that their self-injurious behaviours were impulsive acts, the statements made during the interview suggested that this may not be accurate for all self-injurers identified in this study. For example, five participants (20%) mentioned some degree of thinking about or planning to injure himself or herself



before doing so. P25 reported she “sort of think(s) about it [beforehand to] make sure I didn’t bleed anywhere”. P15 reported that her self-injury was not impulsive as she “tried to listen to music first”, and P8 reported that she “thoughts about it heaps”. P11 appeared to be somewhat confused as to whether she had prior thoughts about hurting herself. P11 acknowledged thinking about self-injury prior to injuring herself but was not able to specify a time period and also stated, “It’s not really a thought”, and then conversely “every time I thought about it, I did it”. P18 indicated thinking about hurting herself for approximately two minutes prior to doing so, and P21 stated “I constantly thought that I [would] do it” yet self-injured approximately every two weeks, which suggests she has some self-control over her self-injury acts.

Participants were asked whether they consumed alcohol or used drugs at the time they injured themselves. Seven participants (28%) reported having consumed alcohol prior to hurting themselves, and of these, four participants indicated that they had planned to consume alcohol while hurting themselves. P6 acknowledged that at times she planned to drink alcohol as she “didn’t want to feel as much pain”, and P5 indicated consuming alcohol prior to burning himself so that he would “withstand the pain”. P21 reported at times she was “drunk” prior to self-injuring and on other occasions “[I] took tablets to get drunk quicker”. P20 reported one occasion of consuming “half a bottle of vodka with half a bottle of pills”. Of the three self-injury participants who reported that their self-injury was *not* planned to coincide with alcohol consumption, one participant stated that the alcohol helped her “to deal with it and make me feel better” (P24).

P14 reported having consumed alcohol and used marijuana prior to hurting herself, yet stated that this was “not planned” (she was the only participant to report both alcohol and drug use). The third participant reported drug use associated with self-injury, but denied that this was planned in that she had self-injured “on the down side, the next morning” after taking ecstasy (P22). No participant reported that they had planned any other illicit drug use associated with self-injury. Thus the majority of participants reported that they engaged in self-injury in the absence of concurrent alcohol consumption or drug use. Six of the seven participants who had consumed alcohol and/or used drugs had self-injured in the previous 12 months.

Table 3.6

*Self-Injurious Behaviours and Frequency Reported By Each Participant*

Participant	Gender	Current Age (years)	Age of onset of self-injury (years)	First self-injurious behaviour	Later self-injurious behaviours	Previous frequency of self-injury	Current frequency of self-injury
P1	Female	18.2	15	Scrape nails	Dig nails, scrape nails, self-induced vomiting	Same as current self-injury	Once every 2 months
P2	Female	18	17	Hit head	Hit head	Same as current self-injury	Once every 3 months
P3	Male	17.8	13	Scratched, hit wall	Hit wall, recreational activity in excess	Same as current self-injury	2-3 times per month
P4	Male	18	15	Hit wall, hit the ground	Hit wall	Same as current self-injury	Once a week
P5	Male	18.3	12	Cut	Cut, burn	Same as current self-injury	Once every 3 weeks
P6	Female	17.8	12	Cut	Cut hit self, hit wall, burn	Once or twice a week	Once every 3 months
P7	Female	18.2	13	Scratched	Dig nails, scratch, 'tree jumping'	Once or twice a week	Once a month
P8	Female	16.9	16	Cut	Cut	Twice only	N/a
P9	Male	17.9	17	Hit wall	None (1 incident only)	Only once (when 17 years old)	N/a
P10	Female	16.8	15	Scratched, picked, rubbed	None (1 incident only)	Once only (when 15 years old)	N/a
P11	Female	18.2	14	Hit self	Hit self	Once every 2 months	Not for 1 year
P12	Male	17.9	Unclear	Hit wall	Hit wall, reckless 'daredevil' behaviour	Once every week	"Not for ages"
P13	Female	17.7	14	Cut	Cut	Once every 4 months	Not for 1 year

Participant	Gender	Current Age (years)	Age of onset of self-injury (years)	First self-injurious behaviour	Later self-injurious behaviours	Previous frequency of self-injury	Current frequency of self-injury
P14	Female	17.4	15	Cut	Cut	Two or three times only	Not for at least 1 year
P15	Female	17.5	16	Kicked	Kicked, hit objects	“Almost never”	“Almost never”
P16	Female	17.3	12	Cut	Hit self, hit wall, kicked	1-2 times per month	Not for ‘unspecified’ time
P17	Female	18.0	15	Scraped	Scraped	Three times only	Not for 6 months
P18	Female	18.7	17	Hit wall	Hit wall	Once a month	Not for 6 months
P19	Female	17.8	16	Hit wall	None (1 incident only)	Once only	Not for 12 months
P20	Female	17.3	12	Cut	Cut arm, alcohol and tablet ingestion	1-2 times per week	Not for 5 months
P21	Female	18.5	14	Scratched	Cut, burn, tablet ingestion (with alcohol at times)	Same as current self-injury	1-2 times per month
P22	Female	18.4	17	Cut	Cut, hit self, tablet ingestion, restricted eating	Three times only (approx. once every 6 months)	Once every 6 months
P23	Female	17.3	16	Consumed nail polish remover	Cut	Twice only	Not for 11 months
P24	Female	17.2	17	Cut	Carve, burn, hit self	2-3 times per week	Not for 5 months
P25	Female	17.8	13	Cut	Cut, tablet ingestion	1-2 times per week	Not for 2 years

*Self-injury and perceived pain.* Participants were asked to indicate whether they experienced physical pain at the time of their self-injury. Only one participant (P16) reported severe physical pain at the time of self-injury, approximately equal number of the participants reported ‘moderate pain’, or ‘a little pain’ (35% and 28% respectively), and the remaining 28% of participants reported ‘no pain’ at the time of the self-injury. One participant (P12) did not indicate the severity of physical pain experienced, but stated that his focus was not on the pain but rather to “see how much you can tolerate”. Some participants provided more information about the physical pain experienced during their self-injury. For example, P8 who reported experiencing ‘a little pain’ when self-injuring stated it was “satisfying”, while P13 reported that “the pain blocks everything” and “the sting” is important. Despite experiencing ‘moderate pain’ P17 reported that it was “a better pain than [the] hurting from her [sister]”.

P1 stated, “I don’t usually break the skin”, while P4 reported feeling ‘no pain’ at the time of self-injury and also reported “I’m not thinking about it, at the time [of self-injury], not focusing on it [the pain]”. Similarly P24, who reported experiencing ‘no pain’ also stated, “I would black out and come to with bruises on my face where I had hit myself”. Also when P22 was asked to elaborate further on her pain experience she reported “not when I do it but I do afterwards... I feel like it’s not me. I feel like I lose track of time. I’m a bit fuzzy, but once [I] do it, it’s a bit clearer”. These two participants may have experienced some degree of dissociation in relation to their self-injury.

However it is possible that the experience of physical pain can lead some individuals to cease hurting themselves as illustrated by comments made by P25: [it hurt only] “once, the last time I did it. I heard and saw the cutting of the flesh. It really, really hurt that time”. It appears that in this sample at least the majority of participants perceived some degree of physical pain at the time of self-injury, and for some participants mentioned above the pain appears to have been functional.

*Self-attributions for engaging in self-injury.* Participants were asked to provide explanations or reasons for injuring themselves. Participants were given the opportunity to generate their own reasons prior to viewing a list of possible reasons generated from the literature. All reasons endorsed are presented in Table 3.7.

Table 3.7

*Number Of Participants Who Endorsed Each Reason For Engaging In Self-Injury*

Reason	Number of participants
“To get out my frustrations”	19
“To reduce emotional pain”	14
“To reduce tension”	11
“To express my anger towards others”	10
“To feel concrete pain because the other pain is so overwhelming”	9
“To stop feeling so overwhelmed”	8
“To relax”	6
“To release me from my worries”	6
“To punish myself for being bad in some way”	5
“To feel less depressed”	4
“To hurt myself because I deserve it”	3
“To make myself feel better”	2
“To forget everything else” (self-generated)	1
“To release stress” (self-generated)	1

Perhaps of most interest is the *main reason* participants identified for self-injuring (see Table 3.8). As can be seen in Table 3.8, 80% of participants indicated the use of self-injury was primarily to cope with or regulate their emotions and/or affect. The remaining five participants appeared to be communicating anger either to others or themselves. Hence, all reasons participants gave for their self-injury were associated with feeling negative emotions, emotion recognition, emotion regulation, and/or the perceived need to communicate emotion to others.

Table 3.8

*The Main Reason Endorsed By Participants For Engaging In Self-Injury*

Reason	Number of participants
“To get out my frustrations”	8
“To feel concrete pain because the other pain is so overwhelming”	3
“To reduce emotional pain”	3
“To punish myself for being bad in some way”	2
“To stop feeling so overwhelmed”	2
“To express my anger towards others”	1
“To feel less depressed”	1
“To forget everything else” (self-generated)	1
“To relieve anger” (self-generated)	1
“To release stress” (self-generated)	1
“To release me from my worries”	0
“To hurt myself because I deserve it”	0
“To relax”	0
“To make myself feel better”	0
“To reduce tension”	0
Not stated	2

*Intervention for self-injury.* Only one participant (4%) reported requiring any medical intervention for her self-injury. Specifically this participant (P24) reported seeing a doctor for painkillers directly in relation to her self-injury. However P12 reported requiring medical treatment related to concussions and having his foot driven over during risk-taking behaviours.

*Previous counselling.* Almost half of the participants reported having had some prior counselling or therapy. Six of these saw a guidance/school counsellor (P5, P6, P7, P12, P18, P22), two saw a psychologist and a psychiatrist (P20, P24), one participant talked with the school youth health nurse (P19), and one participant (P8) talked with a school counsellor in addition to having been to see other private counsellors. Participant P10 reported having engaged in counselling with a Lifeline service counsellor, and P25 with an unspecified counsellor. P17 was engaged in counselling at the university’s Student Counselling Service at the time of the interview. Despite the fact that these 13 participants had been linked in with a helping agency at some stage in the last few years, eight of these participants reported having hurt themselves in the previous 12

months. The remaining 12 participants had not come to the attention of medical or health professionals.

*Disclosure of self-injury.* The majority of self-injuring participants (80%) reported having disclosed their self-injury to a significant other. Most participants had disclosed their self-injury to one person only: a friend ( $n=8$ ), a boyfriend/girlfriend ( $n=4$ ), and three male participants reported that their friend(s) had witnessed their self-injury. Five other participants had disclosed their self-injury to at least two of the following: friend(s), parent, boyfriend, and sibling(s). Of the males whose friends had witnessed their self-injury, P5 stated he sometimes self-injures “with a friend, [as] a competition, to see how much pain you can stand”, and P9 stated it was “not intentional”. P12 indicated only engaging in risk-taking behaviours with friends. P13 reported not having disclosed the self-injury but rather that her friends noticed her injuries. Sixty percent (60%) of the participants who had disclosed their self-injury to a significant other had injured themselves in the previous 12 months.

*Knowledge of others' self-injury.* Most participants (80%) indicated that they knew of at least one friend who engages in self-injury. This may imply that there is some degree of influence or complicity by others for self-injurious acts, even though P5 was the only participant to report engaging in ‘group episodes of self-injury’. One participant (P21) reported she “met a few [friends] on the web”. The possibility that a ‘contagion effect’ may exist should be considered given that the participants were aware that other adolescents also engage in self-injury behaviour. Furthermore this suggests that this type of behaviour may be seen as an acceptable coping strategy for individuals aged 17 or 18 years.

### *Qualitative Data Analysis*

Preparation of the data for qualitative analysis typically involves transcribing the records, however university ethical restraints did not allow for audiotaping of the interviews, therefore the interviews were recorded in written form at the time of data collection. It is acknowledged that note-taking at time of the interview likely impacted on the flow and depth of information discussed. Analysis of the data collected from the 25 participants who indicated they had self-injured occurred between two and six months after the interviews took place. This includes individuals who reported currently engaging in self-injurious behaviours as well as those who have previously, yet no longer, engaged in self-injury.

The responses to the semi-structured interview questions were analysed in accordance with the principles and steps of Interpretative Phenomenological Analysis outlined by Willig (2001) and Smith, Jarman, and Osborn (1998). The first stage of analysis in IPA involved reading and re-reading of the text. The researcher's task was to produce wide-ranging and unfocused notes that reflect the initial thoughts and observations in response to the text; these notations included associations, questions, summary statements, comments related to language use, absences, and descriptive labels. These notes were simply a way of documenting issues that arose for the researcher upon initial contact with the text. The purpose of this immersion was to give the researcher an overall feel for the data's scope and meanings, although these tended not to be articulated at this stage (Barker, 2002).

The second stage required the researcher to identify and label themes that characterised each section of the text. Theme titles were conceptualised that captured something about the essential quality of what is represented by the text.

The third stage involved an attempt to introduce structure into the analysis by listing the themes identified in stage two and thinking about them in relation to one another. Some of the themes formed natural clusters of concepts that share meanings or references, while others were characterised by hierarchical relationships with one another. Clusters of themes were given labels that captured their essence. It was important that the clustering of themes identified at this stage made sense in relation to the original data. Thus the researcher needed to go back and forth between the list of themes and the text.

The fourth stage involved the production of a summary table of the structured themes, together with quotations that illustrated each theme. Included in the summary table are only those themes that captured something about the quality of the participants' experience, therefore some of the themes generated in stage two were excluded; these typically were those that were not well represented within the text. The summary table included the cluster labels together with their subordinate theme labels, brief quotations and references to where relevant extracts may be found in the interview transcript.

The integration stage involved the use of the summary table for the first participant in the analysis of subsequent cases. The original list of themes was used to code the other interviews, with themes added or elaborated on in the process. The integration phase generated a list of master themes which captured the quality of the participants' shared experience of the phenomenon under investigation, and which, also



told us something about the essence of the phenomenon itself. IPA is not considered complete until that which was shared between participants had been identified and captured in superordinate themes.

To increase comparability across participants and reduce the complexity that would be involved in creating different summary tables for each participant, the first participant's summary table was used to organise findings from the other 24 participants' interview data. However it is also important to keep in mind that the interviews were semi-structured in design. This somewhat limited the flexibility of the interview process and increased the appropriateness and usefulness of having the same summary table for each participant.

Three subordinate themes emerged from the IPA for self-injurers: 'emotional state', 'stressors', and 'explanation of self-injury'. The results from the IPA are presented below with the survey scores interwoven, which are analysed only on an individual basis. Quotations that are presented in the analysis are preceded or followed by a 'P' and a number, which identifies the particular participant from whom the quotation was derived. A fourth aspect, presented as a theme, is that of coping which is also discussed below even though this was primarily considered in relation to the survey data rather than it being a theme that emerged from the interview data. The IPA themes are supplemented with information obtained from the surveys when it was deemed that this would provide complementary information.

*Theme 1: Emotional state.* The first theme identified during the IPA, 'emotional state', refers to the participants' reported emotions or feelings associated with their self-injury act. During the interview participants spontaneously indicated they self-injured in response to their emotional state. Most reported feelings of discomfort and indicated that they were unable to tolerate the feelings, and self-injury was their strategy to manage the emotions.

Some participants acknowledged the relationship between self-injuring and *stress*; for example P1 stated, "I was really stressed", and P3 reported, "to release stress". *Anger* and *frustration* were reported specifically by a small number of participants. For example, P15 stated, "When I get angry I need to get it out". P12 reported, "To relieve anger", P13 described feeling "frustrated and upset", and P9 reported feeling "frustrated". While P22 reported feeling angry she also stated, "I couldn't figure out what I was angry about". Furthermore P3, who acknowledged that he experienced 'a little pain' while self-injuring, verbalised a link between pain and

emotional state: “the pain is to wipe the slate clean from all the rage. The after-pain calms me down”.

Other participants reported self-injuring in response to feeling *sad*, *upset* or *depressed*. P8 reported, “feeling lonely and sad” and also reported that her self-injury was a “physical expression of feelings”. Participant P17 reported feeling “upset or hurt”, and although P16 described feeling “depressed” prior to self-injuring she appeared reluctant to elaborate further on her feelings, but instead reported the thoughts that she had at the time of self-injury. Only one participant (P5) reported self-injuring in response to feeling “bored”.

Not all participants indicated that their self-injury was associated with an emotional state. Nine of the female participants did not discuss any specific associated emotions without being prompted, and even with prompts they responded reluctantly and without much detail. P19 reported she self-injured “to deal with how I was feeling”, and P18 reported that she was “probably really emotional at the time...[and] to deal with emotions”. P10 stated “getting the feeling out”, and P11 reported “feelings build up over time”.

Participants were asked to recall their associated feelings before, during, and after their most recent incident of self-injury. A range of emotions were reported and some participants recalled feeling angry, annoyed, frustrated or ‘rage’ *prior* to hurting themselves, while other participants reported feeling anxious, worried or sad. The participants recalled feeling differently, *during* when compared to *following* the self-injury. Four participants (P5, P17, P18, P22) reported a comfortable feeling (“calm”) after injuring themselves. Although P20 reported feeling guilty and regretful, she also felt “happy” after self-injuring as “the emotion is dealt with”. Most of the participants who indicated an initial relief/release/calm feeling reported it being followed by uncomfortable feelings (i.e., annoyance, anger, embarrassment, guilt) and they tended to be angry with themselves for having self-injured, and experienced associated embarrassment and guilt for the act, and worried that someone would discover their self-injury. A summary of the feelings reported by participants *before*, *during* and *following* their most recent incident of self-injury is presented in Table 3.9.

Table 3.9

*Retrospective Reports of Feelings Associated With Most Recent Incident of Self-Injury*

Participants	Feelings		
	Before	During	After
P1	Anxious, frustrated	Relief	Anxious, frustrated
P2	Angry, annoyed	Embarrassed	Calm
P3	Angry, tense	Pain	Stressed
P4	Angry, worried, annoyed	Release	Calm, relaxed
P5	Annoyed	Calm	Calm
P6	Rage, sadness	Relaxation, calm	Regret, annoyed
P7	Upset, stressed	Relieved	Angry, lonely
P8	Alone, sad	Despair	Relief, disappointment
P9	Anger, annoyed	Anger	Regret
P10	Sad, lonely, annoyed, angry	Sad, lonely, annoyed, angry	Less lonely & sad, Ashamed
P11	Upset	Angry, annoyed	Angry, annoyed
P12	Anger	Anger	Ashamed
P13	Rage, sad, lonely, anxious	Calm	Relief, guilty
P14	Sad, alone	Sad, alone	Ashamed
P15	Rage, annoyed, tense, angry	Rage, annoyed, tense, angry	Sad, lonely
P16	Stress, angry	Angry, pain	Pain, sad, relief, guilty
P17	Angry, hurt	Release, calm, relaxed	Calm, guilty, ashamed
P18	Hurt, "borderline hysterical"	Hurt, "borderline hysterical"	Calm
P19	Rage, annoyed	Rage, annoyed	Tense, rage, annoyed
P20	Upset, angry, annoyed	Lonely, upset, angry	Guilty, regret, happy
P21	Annoyed, stressed, worried, upset	Relief	Ashamed
P22	Angry, confused, distant	Calm	Calm, embarrassed, ashamed.
P23	Rage, anxious, annoyed	Sad, alone	Sad, alone, guilty
P24	Depressed	Disjointed	Shocked, scared, guilty
P25	Upset	Sad, alone, lonely	Embarrassed, angry at self

Scores on the Trait Meta Mood Scale (TMMS; Salovey et al., 1995) for four of the participants who had reported self-injury in the previous 12 months indicated that they paid little attention to their feelings (P3, P9, P12, P15). However four other participants (P13, P14, P19, P25), all whom had *not* self-injured in the previous 12 months, indicated on the TMMS that they paid much attention to their feelings. Furthermore, consistent with the comments made regarding feelings, nine participants

had scores on the TMMS Clarity of feelings subscale that indicated they have difficulty distinguishing between their feelings; and five of these participants having injured themselves in the previous 12-months. On the TMMS Feeling repair subscale, five participants reported they are well able to change uncomfortable feelings and maintain comfortable feelings, whilst four participants indicated they have difficulty modulating their emotions. According to the TMMS and consistent with their interview data, these individuals are likely to experience distress when regulating their emotions as they experience difficulty identifying feelings in the first instance. It is possible that for some of the participants in this study self-injury may be used as a method for managing emotions. Although for others this behaviour was found not to be helpful in changing uncomfortable emotions (as noted earlier), and the intensity of emotions experienced may result from participants being unable to modulate their emotions.

As with the TMMS, nine participants had higher scores for neuroticism than the mean reported by Costa and McCrae (1992), indicating that they are more likely to experience negative emotions and greater distress than that reported in the validation study of this scale. Four of these nine participants had injured themselves in the previous 12 months.

In comparison to the mean scores for an adolescent sample the majority of current self-injury participants indicated some degree of elevated anxiety on the SCARED scale that was above the clinical cut-off score (Birmaher et al., 1997). Eleven participants reported that they experienced elevated generalised anxiety symptoms, nine participants' scores indicated that they experience panic disorder symptoms (8 were above the clinical cut-off score), and three participants reported symptoms of separation anxiety. Four participants each reported symptoms of social anxiety, and university anxiety. However, in contrast not all participants reported high levels of anxiety. Nine participants' scores for each of the SCARED subscales were below the means and clinical cut-off scores reported by Muris, Merckelbach, Ollendick, King, and Bogie (2002), indicating they experience little anxiety. Furthermore, seven of the nine participants with anxiety symptoms injured themselves in the previous 12 months. While these results indicate that the majority of self-injurers in this study experience elevated levels of anxiety, anxiety was not reported by all those who had self-injured in the last 12 months.

In reviewing the Reynolds Adolescent Depression Scale, scores for five participants (P17, P18, P20, P21, P22) were higher than the mean reported by Reynolds (1987a), indicating that they were experiencing a rather elevated number of depressive

symptoms. However, only two participants' scores (P17, P22) were above the clinical cut-off score. These findings coincide well with self-reported feelings of anxiety prior, during, and after self-injury, and fewer reports of feeling sad, depressed, or upset.

In comparison to means for suicidal ideation in a non-clinical population (Reynolds, 1987b), three participants (P20, P22, P25) in this study reported scores for suicidal ideation that were higher than the means reported by Reynolds (1987b) and all were above the clinical cut-off score. A summary of scores indicating psychopathology can be seen in Table 3.10.

In summary, while a consistent pattern of affect dysregulation was not evident for all participants, both the interview data and the scores on the affect and personality measures indicate some degree of variability in affect regulation ability, with the most consistent finding being difficulty with clarifying feelings, and in most self-injurers heightened anxiety, yet few symptoms of depressed mood. In addition a small number of self-injury participants reported elevated suicidal ideation scores, and for at least one participant (P22) her scores on both the mood and anxiety measures as well as her scores on suicidal ideation provide an indication of serious emotional distress, with scores for depression and suicidal ideation above the clinical cut-off and elevated symptoms of generalised anxiety and panic disorder.

The suggestion that self-injury serves the function of coping with affective states was not supported by the responses by the participants in this study. While many of the participants highlighted that the intended aim to engage in self-injury was to deal with their emotive states, this was mostly unsuccessful as the majority did not subsequently report feeling better. It remains unclear whether self-injurious behaviour for these young people have ever been effective in regulating affect or if continued affective distress is a consequence of repeatedly using self-injury to cope.

*Theme 2: Stressors.* The second IPA theme identified is 'stressors' which refers to participants' acknowledgement of a range of issues that they were dealing with at the time of their first act of self-injury. 'Stressors' can be divided into the themes of family, friends, school, and romantic relationships, which are the usual concerns in adolescents' lives. For this particular group abuse was identified as an additional type of stressor. More than two thirds of the sample reported one primary event precipitating their first self-injury act.

Table 3.10  
*Profile Of Participants With Elevated Scores For Aspects Of Psychopathology*

	Age (years)	Self-injured in previous 12-months	Generalised anxiety	Panic disorder	Social anxiety	Separation anxiety	University anxiety	Depression	Suicidal ideation
P1	18.2	Yes	<b>Elevated**</b>	<b>Elevated**</b>	None	None	<b>Elevated**</b>	None	None
P2	18	Yes	<b>Elevated**</b>	<b>Elevated**</b>	None	None	<b>Elevated**</b>	None	None
P3 <sup>a</sup>	17.8	Yes	None	None	None	None	None	None	None
P4 <sup>a</sup>	18.0	Yes	None	<b>Elevated**</b>	<b>Elevated**</b>	None	None	None	None
P5 <sup>a</sup>	18.3	Yes	None	None	None	None	None	None	None
P6	17.8	Yes	None	None	None	None	None	None	None
P7	18.2	Yes	None	None	None	None	None	None	None
P8	16.9	Yes	<b>Elevated**</b>	<b>Elevated**</b>	None	None	None	None	None
P9 <sup>a</sup>	17.9	Yes	None	None	None	None	None	None	None
P10	16.8	No	None	<b>Elevated**</b>	None	<b>Elevated**</b>	None	None	None
P11	18.2	No	None	None	None	None	None	None	None
P12 <sup>a</sup>	17.9	Yes	None	None	None	None	None	None	None
P13	17.7	No	None	None	None	None	None	None	None
P14	17.4	No	None	<b>Elevated**</b>	None	None	None	None	None
P15	17.5	Yes	<b>Elevated**</b>	<b>Elevated**</b>	<b>Elevated**</b>	None	<b>Elevated**</b>	None	None
P16	17.3	No	<b>Elevated**</b>	None	None	None	None	None	None
P17	18.0	No	<b>Elevated**</b>	<b>Elevated**</b>	None	<b>Elevated**</b>	<b>Elevated**</b>	<b>Elevated**</b>	None
P18	18.7	No	<b>Elevated**</b>	None	None	None	None	<b>Elevated**</b>	None
P19	17.8	No	<b>Elevated**</b>	None	None	None	None	None	None
P20	17.3	Yes	None	None	None	None	None	None	<b>Elevated**</b>
P21	18.5	Yes	None	None	<b>Elevated**</b>	None	None	<b>Elevated**</b>	None
P22	18.4	Yes	<b>Elevated**</b>	<b>Elevated**</b>	<b>Elevated**</b>	None	<b>Elevated**</b>	<b>Elevated**</b>	<b>Elevated**</b>
P23	17.3	No	<b>Elevated**</b>	None	None	None	None	None	None
P24	17.2	Yes	None	<b>Elevated**</b>	None	<b>Elevated**</b>	None	None	None
P25	17.8	No	<b>Elevated**</b>	None	None	None	None	None	<b>Elevated**</b>

\*\* Above clinical cut-off score.

<sup>a</sup> Males.

Nine participants reported their first self-injury act occurred in the context of *family difficulties*. P2 reported “money issues and with mum”, P7 stated, “my parents divorced, my father left”, and P5 reported “[I] locked the keys in the car and father went rank at me and I got a belting of a lifetime”. P4 reported “[my] brother annoying me”, and P6 “getting into physical fights with dad”. P11 reported, “fights with family members”, P10 reported that her “[step-] father was abusive and threatening”, and P17 reported the stressor as “fights with my sister”. It appears that for P19 it was the repercussions of an event rather than the actual event that was stressful: “my father hit me and school found out about it”. The stressors reported by participants within the domain of family difficulties included parental divorce, and verbal or physical arguments with parents or siblings.

Three participants reported *relationship issues* preceded their first act of self-injury. P9 reported, “my girlfriend and I had a huge fight and we broke up”, and P14 stated “stupid adolescent boyfriend troubles”. P23 reported “arguments constantly with my boyfriend” were occurring at the time of her first act of self-injury. Only one participant reported *friendship difficulties* as precipitating her first act of self-injury; “it hurt that my friends’ hate me” (P15). Two participants (P20 and P24) reported they first self-injured after being raped.

Seven participants (28%) reported that a number of stressors were occurring concurrently. P3 reported “nothing was going well – brothers, girlfriend, assignments”. P21 reported first self-injuring in the context of “a whole lot of things: I was really stressed, problems with parents, sister, and family, fighting with a guy ten years older, something happened”. P1 reported her self-injury commenced “around exam item...I was really stressed; and friends were bullying me...”, thus highlighting both school and friendship stressors as triggers. P16 reported multiple stressors; namely “difficulty coping with change of high school, and difficulty communicating myself with people”. P8 reported that she had “just broken up with my boyfriend, had moved out by myself [and] school pressured me to move back home...everything happened at once”. P22 reported, “school and living up to expectations and [my] relationship. I knew it wasn’t right; I felt I was being unfair to him. Living up to fitting the mould”. P13 simply reported “my parents and school” and also stated “a lot of things contributed” which adds some vagueness to the factors that were occurring at the time of initial self-injury. Only one participant (P12) did not indicate any precipitating stressful events.

Two participants indicated different stressors for the initial self-injury thought or urge compared to the actual self-injury act. P18 described first thinking about self-injury

after her parents separated, yet engaged in her first self-injury act after “a big fight with mum...[after I] dropped out of uni”. P25 described first thinking about self-injury after she “started high school, parents separated, a couple of friends died from cancer, and personal things built up”, and first injured herself “a couple of weeks later [when I] was at home by myself and was alone and upset”, yet was not able to specify an exact trigger for the act of self-injury.

A number of participants indicated that several stressors were occurring concurrently (for example, “all happening together” stated by P1) while for others it seems that the stressors had accumulated subsequent to each other. However the majority of participants indicated that their first act of self-injury occurred in the context of just one stressful event. Given that the participants are adolescents, it is not surprising that they find the presence of multiple stressors challenging. What is of concern is that so many young adolescents (at least in this study) resort to self-injury to cope with what might be ‘everyday stressors’ that most young people are faced with during this period of their life.

In comparison to the mean reported by Mazza and Reynolds (1998) for their sample of adolescents, eight participants in this study appeared to have experienced more life events. They reported life stressors including: family financial difficulties; death in the family; own, family or friend’s health or mental health problems; parental separation or divorce; relationship difficulties; and death of a friend. In addition, six of these participants reported elevated perceived stressfulness of the life events in comparison to the mean found for the large university study (Study 1A). Refer to the example case studies for details regarding specific life stressors identified by the participants (in Appendix C). Only two participants (P1, P17) indicated they experienced more daily hassles and four participants (P1, P8, P17, P19) reported higher perceived stressfulness of daily hassles than the means found for the large university screening study (Study 1A). Overall it would seem that the majority of participants reported major life events, perceived stressfulness of major life events, daily hassles and their perceived stressfulness within the normal range. However it was the case that the self-injury participants reported experiencing a greater number of life events rather than more daily hassles.

Just over half of the participants reported experiencing some type of maltreatment. This was indicated by the Child Trauma Questionnaire-Short Form subscale scores that were higher than the means reported by Bernstein et al. (2003) with university undergraduates. Five participants reported emotional abuse, and all of these



participants had injured themselves in the previous 12 months. Also five participants reported experiencing emotional neglect whilst growing up; and all of these participants had self-injured in the previous 12 months. Four of these participants reported experiencing both emotional abuse and emotional neglect. Three participants, two females and one male (P3, P8, P21) reported sexual abuse; and all three participants had self-injured in the previous 12 months. Six participants reported experiencing physical neglect while growing up; four of these participants had self-injured in the previous 12 months. The most commonly reported type of maltreatment was physical abuse, which was reported by more than one third of participants ( $n=9$ ) and seven of these participants had self-injured in the previous 12 months. Of the twelve participants who did not report abuse or neglect five participants' scores indicated a possible underreporting of maltreatment (P3, P4, P14, P20, P23) according to the under-reporting scale of the CTQ-Short Form. Taking these findings into account and consistent with their comments during the interview, while no single form of maltreatment was reported by all participants, it seems that the majority of participants in this sample have experienced some aspect of abuse or neglect. Furthermore the majority of individuals who reported some type of maltreatment had injured themselves in the previous 12 months. Physical abuse and physical neglect were the forms of maltreatment most often reported by the self-injurers.

It has been suggested by Barber (1996) that a more subtle form of maltreatment is psychological control, whereby the parent does not allow the adolescent age-appropriate levels of autonomy. More than one third of the participants reported that at least one of their parents exert excessive psychological control over them. In addition, four participants (P2, P7, P15, P19) reported that both parents exerted psychological control over them; three of these four participants have injured themselves within the previous 12 months. Table 3.11 highlights the aspects of maltreatment and psychological control reported by each participant.

Table 3.11

*Profile of Participants With Classifications For Aspects of Maltreatment*

	Age (years)	Self-injured in previous 12- months	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Possible under- reporting (Dental score)
P1	18.2	Yes	None	None	None	None	None	No
P2	18.0	Yes	None	<b>Moderate</b>	None	<b>Moderate</b>	<b>Severe</b>	No
P3 <sup>a</sup>	17.8	Yes	None	None	<b>Moderate</b>	None	None	<b>Yes</b>
P4 <sup>a</sup>	18.0	Yes	None	None	None	None	None	<b>Yes</b>
P5 <sup>a</sup>	18.3	Yes	None	<b>Severe</b>	None	None	<b>Moderate</b>	No
P6	17.8	Yes	<b>Moderate</b>	<b>Severe</b>	None	<b>Moderate</b>	None	No
P7	18.2	Yes	<b>Low</b>	<b>Moderate</b>	None	None	None	No
P8	16.9	Yes	<b>Severe</b>	<b>Severe</b>	<b>Moderate</b>	<b>Moderate</b>	None	No
P9 <sup>a</sup>	17.9	Yes	None	None	None	None	None	No
P10	16.8	No	None	None	None	None	None	No
P11	18.2	No	None	<b>Moderate</b>	None	None	<b>Low</b>	No
P12 <sup>a</sup>	17.9	Yes	None	None	None	None	None	No
P13	17.7	No	None	None	None	None	None	No
P14	17.4	No	None	None	None	None	None	<b>Yes</b>
P15	17.5	Yes	<b>Severe</b>	<b>Moderate</b>	None	<b>Moderate</b>	None	No
P16	17.3	No	None	None	None	None	<b>Moderate</b>	No
P17	18.0	No	None	None	None	None	None	No
P18	18.7	No	None	None	None	None	None	No
P19	17.8	No	None	<b>Severe</b>	None	None	None	No
P20	17.3	Yes	None	None	None	None	None	<b>Yes</b>
P21	18.5	Yes	<b>Severe</b>	None	<b>Moderate</b>	<b>Moderate</b>	<b>Severe</b>	No
P22	18.4	Yes	None	None	None	None	<b>Low</b>	No
P23	17.3	No	None	None	None	None	None	<b>Yes</b>
P24	17.2	Yes	None	<b>Moderate</b>	None	None	None	No
P25	17.8	No	None	None	None	None	None	No

<sup>a</sup> Male.

Note. Classifications derived from Bernstein and Fink (1998).

*Theme 3: Explanation of self-injury.* ‘Explanation of self-injury’ is the third IPA theme identified and refers to the participants’ understanding for engaging in self-injury or the changes in their self-injury over time. Some explanations centred on not knowing what else to do. For example, P6 reported, it “got to a point where I did it just to do it. I didn’t so much have a reason to do it, but I wanted to. I felt I need to do it”. P7 reported that self-injury “would help take my mind off whatever else”, and that self-injury was “more of an urge when I first started”. Thus P7 emphasised the change that has occurred in terms of motivation for self-injury. P20 stated “I usually only cut myself when hysterical and don’t know what else to do...to release tension”. P21 reported, “[I have urges] only when I haven’t [self-injured] for some time”, and “[I] act on it straight away...not that I have to”.

For one participant, she explained her self-injury as a way to communicate her distress to others. For example P16 reported she was motivated “to hurt myself .....for people to know”. While it seemed important for P16 that others notice her self-injury, other self-injury participants clearly stated that they did not want a significant other to be impacted by their self-injury. For example, P17 stated her self-injury was “not [an] attention thing” and “I stopped it because it hurt the people I liked”. P17 also highlighted her motivation for starting self-injury: “to deal with the feeling...I *used* to do it because it would feel better” (emphasis added). This statement by P17 also suggests that over time self-injury ceased in its usefulness to regulate her mood, perhaps because the over-riding guilt in knowing that her self-injury affected others. P25 stated she “stopped once people noticed; [I] didn’t want people to interfere. At one stage I wanted the attention, but when I got it, I still wasn’t happy”.

While most participants discussed their self-injury in relation to their feelings, other participants indicated non-mood related motivations for self-injury. P13 stated engaging in self-injury “to take my mind off it...it forget everything; pain blocks everything”. P22 reported, “it gets easier. Like breaking a barrier, you know you can do it and do it again”. Also P22 reported she engages in “cutting to draw blood”. One participant (P15) *thought about* engaging in self-injury acts that were more severe than the self-injury she later actually engaged in; suggesting the presence of some degree of self-control. P25 reported that she did not self-injure when you younger brother was at home; which may indicate a protective factor and also some degree of self-control. P12 explained that sometimes “I stop myself; at other times I felt like I had to hit”, which emphasises the role that urge has in maintaining self-injury.

P19 highlighted that she self-injured once “to deal with how I was feeling” yet reported that it did not help as after the act she felt the “same feelings” (i.e., rage, annoyed). The lack of change in her feelings was possibly an important factor in P19 not continuing to self-injure. P11 experienced the same ineffectual impact of self-injure for emotion regulation (“probably the same as it didn’t do much” in terms of how she felt after her last act of self-injure).

Some of the participants provided explanations for reducing the frequency of self-injury, or for ceasing hurting themselves. P14 described her motivation to stop self-injuring and at the same time highlighted the link between self-injury and coping: “it was stupid and I learnt not to let things affect me as much. I realised that wasn’t a way to cope”. P13 also described a change in her thinking perception of life in relation to her ceasing to self-injure: “now...life’s too good”. P22 was motivated to cease self-injuring by “ugly scars”.

P7 reported currently engaging in less self-injury that was “not as deep” than she did previously as she now has “more people around”; indicating greater social support than previously. P6 stated she “kind of learnt to deal with it [the stressors]”. P25 reported that during “the last time I did it [self-injured] I heard and saw the cutting of the flesh [and] it really, really hurt that time”.

Although any respondent who had reported having engaged in suicidal attempts was excluded from phase 2 of the study, some participants discussed the distinction that exists for them between self-injury and suicidal ideation or attempts. P5 indicated that at times he considered suicide and acknowledged that self-injury may have been an indication of ambivalence towards suicide, “to kill myself and end my life...hope for the best”, however he did not report having engaged in any obvious suicidal attempts, or any behaviours that would have excluded him from the study and his current suicidal ideation score was within the normal range. P16 reported that at times she felt “I did want to hurt myself; to end my life; but [I would be] weak if it happened; what was it all for?”. Despite some self-reported hopelessness and suicidal ideation, P16 had depression and suicidal ideation scores within the normal limits, and she displays self-control and ability to think beyond her immediate situation. P18 noted that her engagement in self-injury was “to deal with emotions or stuff, not to end my life”, emphasising a distinction that was perhaps obvious to her. P20 stated that she was “thinking...of cutting, not suicide. Do it, go to bed and be fine in the morning”.

Those participants who were engaging in self-injury less frequently appeared less willing to discuss their self-injury behaviour in as much detail. Both P2 and P6,

who engaged in self-injury approximately once every 3 months, were both brief in their explanation of their self-injury, and reluctant to discuss their experiences further even when prompts were used. P2 and P6's profiles suggest that they may both perceive that they are coping well and that their self-injury is not currently of concern to them.

*Theme 4: Coping and self-injury.* In addition to the scores on the Children's Coping Scale Checklist, the interview sought to explore the participants' coping resources. No particular pattern of coping was identified with the individuals utilising a range of coping strategies including: seeking social support from peers, smoking cigarettes, crying and throwing objects around the room, drawing, leaving the house, retiring to bed early, listening to music and dancing, "giving myself to God", and drinking alcohol.

Despite the variability in the responses on the CCSC, and the small sample size, a consistent pattern of Active Coping was found with only three participants not utilising active coping strategies (i.e., direct problem solving, seeking understanding, or engaging in cognitive decision making or positive coping restructuring) on a regular basis. Of interest, all the participants in the study coped with Seeking Social Support Strategies more frequently than the mean reported in a similar adolescent sample, perhaps suggesting a higher level of need in these participants.

Two less adaptive forms of coping measured by the CCSC are the Avoidance and Distraction scales. Five participants frequently used distraction as a form of coping, and almost one-third often used avoidance coping strategies. This indicates that only a small number of self-injury participants resort to less adaptive coping strategies, such as distracting actions, cognitive avoidance, avoidant actions, and physical release of emotions.

An alternative way to consider the coping strategies frequently used by participants is to look at the *counts* of the number of active, distraction, avoidance, seeking social support, and total coping behaviours. More than half of the self-injury participants indicated that they 'often' or 'most of the time' utilise fewer than 50% of the coping strategies listed, suggestive that these participants have a limited repertoire of coping strategies available to them.

Counts were also considered for each coping subscale. *Cognitive avoidance* coping strategies were used by 14 participants 'often' or 'most of the time', while *avoidant actions* were used by 10 participants. Nine participants used *seeking understanding* coping strategies 'often' or 'most of the time'. *Positive cognitive restructuring* strategies were used by six participants, as were *distracting actions*. Four

participants reported using cognitive decision-making strategies ‘often’ or ‘most of the time’. *Expressing feelings* coping strategies were also used by four participants. *Physical release of emotions* strategies were used by three participants (P4, P21, P22). One participant only reported utilising each of the following coping strategies ‘often’ or ‘most of the time’: *direct problem-solving strategies* (P16), *problem focused support seeking* (P20), and *emotion focused support seeking* (P24). Thus avoidant strategies, both of a physical (action) and cognitive nature were most frequently utilised by the self-injuring participants to cope.

Consistent with the types of coping one might expect in adolescence all participants reported using coping strategies such as ‘listening to music’, and ‘do something to make things better’. In addition, at least 80% of participants reported using the following strategies: ‘think what to do’, ‘imagine how you would like things to be’, ‘notice the good things in life’, ‘stay away from the problem’, ‘put it out of your mind’, ‘talk with a friend about the problem’, ‘change what I do’, ‘tell myself it will be over in a short time’, ‘think more about the problem’, ‘stay away from things that make you feel upset’, ‘think about things’, ‘wait and hope’, ‘talk about my feelings with a friend’, ‘watch TV’, ‘avoid people’, ‘do something to solve the problem’, ‘remind myself that things could be worse’, ‘wishful thinking’, and ‘tell myself it’s not worth getting upset about’.

On close examination of the forms of coping self-injuring participants reported using *most often* as well as the coping strategies they perceived as *most helpful*, it was clear that some frequently utilised strategies are not always perceived as helpful. Six participants indicated utilising Active Coping most often, yet only one participant (P22) found this form of coping to be the most helpful when utilised. Two participants reported most often using Seeking Social Support Strategies, and one participant (P25) only found it most helpful when utilised. Eight participants reported utilising Distraction Coping most often, and six of these participants found this form of coping to also be the most helpful. Nine participants indicated using Avoidant Coping most often, yet none found it most helpful. It appears that self-injury participants engage in a variety of coping behaviours irrespective of whether they find them helpful. Clearly developing more helpful ways to cope may increase the likelihood of them being better able to cope with stressful situation.

## Study 1C

The aims of Study 1C was to examine the affect regulation and traumagenic models of self-injury in a self-injury group and a matched university sample of 16 to 18 year old participants. Also Study 1C aimed to continue exploring the associations between other aspects of self-regulation, stress, and neuroticism, and self-injury in a matched university sample. There were seven hypotheses in Study 1C. All hypotheses concerned factors that were expected to differentiate self-injurers from the university matched comparison group.

### *Hypotheses*

#### *Stress and Neuroticism*

1. University students who were confirmed as self-injurers (“self-injurers”) will report more stressful life events (i.e., maltreatment, major life events and daily hassles) compared to a matched comparison group with no history of self-injury (“university matched comparison group”).
2. Self-injurers will have the tendency to reactive more negatively to stressful life events (i.e., will be higher in neuroticism and will report more perceived stress for daily hassles and life events) than the university matched comparison group.

#### *Affect and Affect Regulation*

3. Self-injurers will experience poorer clarity of feelings, more difficulties with feeling repair, and attend more to their feelings, than the university matched comparison group.
4. Self-injurers will have more anxiety and depressive symptomatology than the university matched comparison group.

#### *Coping*

5. Self-injurers, compared to the university matched comparison group, will use less active coping, and support seeking strategies to cope, and will find these less helpful when utilised.
6. Self-injurers will use more avoidant and distraction coping strategies, and will find these more helpful when utilised, than the university matched comparison group.
7. Daily hassles are better able to predict self-injury than either major life events or maltreatment alone or in combination.

8. The combination of daily hassles, affect regulation, and neuroticism, are better able to predict self-injury than either major life events or maltreatment, alone or in combination.

## Method

### *Participants*

Participants formed two groups. One group included the 25 self-injurers who were described in Study 1B. The second was a comparison group of university students (“university matched comparison sample”) who were matched to the self-injurers for age, gender, and current living arrangement. The comparison group had not reported a history of self-injury on the coping measure described in Study 1A.

*Self-injury group.* See Study 1B for details.

*University matched comparison group.* The 25 comparison participants (20 females, 5 males) ranged in age from 16.5 to 18.8 years of age ( $M = 17.8$  years,  $SD = .5$ ). Participants were enrolled in a range of university degrees, including health science based degrees, business, psychology, and law. Two participants were enrolled in the GUEST program, which means they were still completing grade 12 at high school and also enrolled in a university subject. With respect to ethnic background, twenty-three participants identified as being of white/Caucasian/ European descent, and two participants were of Asian descent. Twenty participants (80%) were from two biological parent families. Twenty of the 25 participants were living with their respective families.

Almost half of the participants’ mother ( $n = 12$ ) had completed year 12 or less, nine participants’ indicated that their mother’s highest level of education completed was a university degree, and two mothers had completed a trade certificate or diploma. Two participants did not provide a response regarding their mother’s highest level of education. Eleven participants reported that their father had completed year 12 or less, 6 participants indicated their father had completed a university degree, and seven fathers had completed a trade certificate or diploma. One participant did not provide a response regarding their father’s education.

The majority of mothers and fathers were employed. Three participants indicated that their mother was not in the workforce. Similarly three participants indicated that their father was not in the workforce, and one participant did not provide a response regarding her father’s employment.



## Results

### *Preliminary Analyses and Analytic Plan*

Prior to conducting tests of hypotheses, the data were inspected to determine accuracy of data entry and potential outliers. Initial examination of distributions in conjunction with formulae proposed by Tabachnick & Fidell (2001) detected no potential univariate outliers. In addition, distributions of variables were assessed. Because of significant positive skew, the measures of suicidal ideation and maltreatment were dichotomised. Suicidal ideation was re-coded as 1 (yes) or 0 (no) in terms of the clinical cut-off score specified by Reynolds (1987b). The five aspects of maltreatment were recoded as yes/no utilising the classification categories specified by Bernstein and Fink (1998), with all three classifications of maltreatment (i.e., low, moderate and severe) coded as 1 (yes) and participants who reported no abuse coded as 0 (no).

The preliminary screening detected some other violations of the normality assumption underlying the t-test. Hence, for the same reasons described in Study 1A, and given the violations of some assumptions of normality and the relatively small group sizes, hypotheses were tested using nonparametric methods (the two-sample Mann-Whitney-Wilcoxon test), and the  $\chi^2$  test for independence was used for analyses with dichotomous variables (i.e., suicidal ideation, and maltreatment). Table 3.12 provides descriptive statistics for all measured variables in Study 1C. Table 3.13 provides correlations of variables measured in Study 1C.

### *Group Comparisons*

To determine whether there were significant differences between self-injurers and a matched comparison group of non-self-injuring university students, 21 nonparametric group comparisons were completed (see Table 3.14 to Table 3.16). Only six of 21 comparisons revealed significant differences between the two groups. Generally, these differences were consistent with the findings of Study 1A and highlighted that university self-injurers, compared to the university matched comparison group, were higher in negative affect and neuroticism, reported more daily hassles and perceived these as more stressful, and were lower in clarity of feelings.

Table 3.12

*Descriptive Statistics of All Measured Variables in Study 1C*

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Median
Positive affect	50	30.54	7.37	31.50
Negative affect	50	20.10	5.54	19.00
Attention to Feelings	49	50.55	7.45	49.00
Clarity of Feelings	49	30.61	6.30	30.00
Feeling repair	49	22.37	4.10	23.00
Neuroticism	49	26.02	8.20	29.00
Daily Hassles, frequency	50	15.72	3.65	15.00
Daily Hassles, stressfulness	50	41.74	18.29	35.00
Daily Hassles, frequency X stressfulness	50	708.68	461.71	544.00
Active Coping, frequency	50	2.46	.47	2.45
Active Coping, helpfulness	50	2.51	.42	2.5
Distraction Coping, frequency	50	2.41	.65	2.47
Distraction Coping, helpfulness	50	2.87	.59	2.87
Avoidance Coping, frequency	50	2.59	.58	2.56
Avoidance Coping, helpfulness	50	2.08	.52	2.06
Seeking Social Support Strategies, frequency	50	1.94	.49	1.87
Seeking Social Support Strategies, helpfulness	49	2.89	.55	2.75
Coping count <sup>a</sup>	50	17.06	5.61	18.00
Anxiety	50	24.24	11.59	24.00
Depression	50	60.92	12.99	62.50
Suicidal ideation	50	19.26	17.12	17.00
Psychological control (Ave of mother and father)	50	1.58	.42	1.48
Life events count	50	6.34	2.62	6.0
Life events, recency	50	21.16	9.79	21.00
Life events, stressfulness	50	17.28	9.01	16.00
Life events, recency X stressfulness	50	440.33	353.94	360.00
Emotional abuse	50	10.14	4.49	9.50
Physical abuse	50	7.32	3.69	6.00
Sexual abuse	50	5.70	2.28	5.00
Emotional neglect	50	9.06	3.30	8.50
Physical neglect	50	6.42	2.04	5.50

<sup>a</sup> Count of coping strategies used 'often' or 'most of the time'.

Table 3.13

*Pearson Correlations Between All Independent Variables in Study 1C*

Variable	1	2	3	4	5	6	7	8	9	10
1. Positive affect	---									
2. Negative affect	-.12	---								
3. Attention to feelings	-.20	.05	---							
4. Clarity of feelings	.31 *	-.32 *	.09	---						
5. Feeling repair	.48 **	-.22	.12	.42 **	---					
6. Neuroticism	-.33 *	.51 **	.18	-.64 **	-.35 *	---				
7. Daily hassles, occurred	.01	.38 **	.16	-.17	.01	.34 *	---			
8. Daily hassles, stressfulness	.05	.51 *	.21	-.28 *	-.03	.51 **	.80 **	---		
9. Active coping, frequency	.26	.01	.18	-.05	.31 *	.12	.11	.24	---	
10. Active coping, helpfulness	.39 **	-.20	-.00	.22	.27	-.21	-.12	.02	.51 **	---
11. Distraction coping, frequency	.41 **	-.25	-.08	-.04	.17	-.21	-.20	-.26	.40 **	.27
12. Distraction coping, helpfulness	.29 *	-.04	-.07	-.17	.04	-.08	.03	-.03	.32 *	.30 *
13. Avoidance coping, frequency	-.02	.40 **	.04	-.28	.04	.37 **	.28 *	.31 *	.30 *	-.02
14. Avoidance coping, helpfulness	.19	-.03	.07	.11	.17	-.05	.04	-.05	.19	.20
15. Support seeking strategies, frequency	.31 *	.06	.06	.31 *	.25	-.13	-.07	-.03	.28 *	.05
16. Support seeking strategies, helpfulness	.24	.23	.20	.06	.27	.03	.03	.25	.15	.14
17. Anxiety	-.17	.40 **	-.06	-.56 **	-.32 *	.61 **	.16	.45 **	.23	.14
18. Depression	-.54 **	.54 **	.01	-.60 **	-.51 *	.73 **	.17	.33 *	-.07	-.24
19. Parental psychological control	.05	.28 *	.00	-.25	-.02	.38 **	.30 *	.35 *	.13	.05
20. Total life events, recency	-.16	-.03	.14	.04	.13	-.01	.25	.08	-.12	-.23
21. Total life events, stressfulness	-.15	.10	.18	.01	-.04	.18	.21	.15	.04	-.22
22. Suicidal ideation	-.25	.15	.02	-.22	-.21	.20	-.14	-.10	.05	-.04
23. Emotional abuse	-.19	.40 **	-.01	-.45 **	-.18	.48 **	.30 *	.33 *	.00	-.20
24. Physical abuse	.21	.14	-.03	.00	.10	.13	.36 *	.29 *	.09	.10
25. Sexual abuse	.15	.09	-.18	.09	-.08	.07	.05	.10	-.22	-.12
26. Emotional neglect	-.31	.32 *	-.06	-.48 **	-.16	.33 *	.16	.26	-.14	-.27
27. Physical neglect	-.23	.11	.15	-.28 *	-.06	.25	.03	.08	.16	.08

Variable	11	12	13	14	15	16	17	18	19	20
1. Positive affect										
2. Negative affect										
3. Attention to feelings										
4. Clarity of feelings										
5. Feeling repair										
6. Neuroticism										
7. Daily hassles, occurred										
8. Daily hassles, stressfulness										
9. Active coping, frequency										
10. Active coping, helpfulness										
11. Distraction coping, frequency	---									
12. Distraction coping, helpfulness	.66 **	---								
13. Avoidance coping, frequency	.20	.24	---							
14. Avoidance coping, helpfulness	.34 *	.49 **	.36 **	---						
15. Support seeking strategies, frequency	.23	.18	.03	-.09	---					
16. Support seeking strategies, helpfulness	-.08	.01	-.09	-.12	.29 *	---				
17. Total Anxiety	-.25	-.13	.16	-.15	-.21	.17	---			
18. Depression	-.44 **	-.30 *	.16	-.20	-.29 *	-.09	.69 **	---		
19. Parental psychological control	-.24	-.17	.07	.04	-.16	.15	.43 **	.37 **	---	
20. Life events, happened	-.34 *	-.34 *	.03	-.14	-.13	-.14	-.08	-.01	.34 *	---
21. Life events, stressfulness	-.27	-.29 *	.18	-.11	-.05	-.09	.15	.23	.31 *	.78 **
22. Suicidal ideation	-.03	.04	.09	.30 *	.20	-.07	.05	.26	-.12	-.07
23. Emotional abuse	-.23	-.11	.20	-.14	-.24	-.10	.42 **	.52 **	.57 **	.06
24. Physical abuse	-.04	.04	-.04	.15	-.09	.00	-.06	.07	.44 **	.26
25. Sexual abuse	-.03	.00	-.01	.17	-.02	-.04	-.13	-.01	.25	.02
26. Emotional neglect	-.14	-.05	.17	-.17	-.28	-.04	.11	.37 **	.29 *	.10
27. Physical neglect	-.07	-.05	.05	.06	-.23	-.05	.21	.30 *	.39 **	.07

Variable	21	22	23	24	25	26
19. Parental psychological control						
20. Life events, occurred						
21. Life events, stressfulness	---					
22. Suicidal ideation	.02	---				
23. Emotional abuse	.06	.05	---			
24. Physical abuse	.10	-.16	.28 *	---		
25. Sexual abuse	.10	-.11	.17	.09	---	
26. Emotional neglect	.09	.12	.46 **	.25	.05	---
27. Physical neglect	-.01	.08	.34 *	.24	.06	.36 **

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

Post-hoc analyses identified that self-injurers ( $M = 19.16$ ,  $SD = 7.21$ ) reported more perceived stress from intrapersonal hassles, than the comparison group ( $M = 14.84$ ,  $SD = 6.41$ ), Wilcoxon Rank = 535.50,  $p < .05$ . These results support the hypotheses that self-injurers have more difficulty with understanding their feelings, and will potentially react more negatively to stressful events, as they are higher in neuroticism. Other hypotheses that expected self-injurers to be lower in positive affect, pay more attention to their feelings, and to have more difficulty repairing their feelings, were not supported.

Inconsistent with the findings of Study 1A, these two groups did not differ in coping responses to stress. Additionally, these groups did not differ when compared on a number of variables not included in Study 1A, including the number of life events or associated recency or perceived stress, parental psychological control, anxiety (either total or subtypes), depression, or suicidal ideation. Therefore hypotheses relating to coping strategies, life events, anxiety, depression, and parental psychological control were not supported.

Findings supported the hypothesis that a higher proportion of self-injurers would have a history of maltreatment. Specific types of maltreatment (i.e., emotional abuse, physical neglect, and physical abuse) were reported by more self-injurers than by those in the university matched comparison group. As shown in Table 3.17, in consideration of emotional abuse, 72% of self-injurers reported having experienced emotional abuse, while only 40% of the university matched comparison group reported experiencing such abuse; this was a significant difference. Also, 32% of self-injurers reported experiencing physical neglect, whilst only 8% of the comparison group did. A trend was identified for physical abuse:  $\chi^2(1, N = 50) = 3.571$ ,  $p = .059$ , with 40% of self-injurers reporting physical abuse, whilst 16% of the university matched comparison group reported similar experiences. No significant group differences were found for sexual abuse and emotional neglect.

Binary logistic regression analyses were to be performed with self-injury as the outcome, to test a number of predictive models. However further statistics to test hypotheses relating to prediction of self-injury were deemed inappropriate and were not performed due to the small number of significant comparisons. Furthermore when group differences were identified, despite being statistically significant, they only had small effect sizes (see Table 3.14 to Table 3.16). Only negative affect, daily hassles (number occurred X stressfulness), perceived stress of intrapersonal daily hassles, clarity of feelings and neuroticism have effect sizes greater than .10.

Table 3.14

*Results of Nonparametric Tests Comparing Affect-Related Variables Between Self-Injurers and a Matched Comparison Group (N = 25 in each group)*

Dependent variable	Group	M	SD	Median	Wilcoxon Rank	Partial Eta Squared
Positive affect	Self-injury	30.7	7.5	32.0	624.5	.00
	Comparison	30.4	7.4	31.0		
Negative affect	Self-injury	21.9	5.6	22.0	524.0*	.11
	Comparison	18.3	4.9	18.0		
Attention to Feelings <sup>a</sup>	Self-injury	49.7	7.0	49.0	563.5	.01
	Comparison	51.4	7.9	53.0		
Clarity of Feelings <sup>a</sup>	Self-injury	28.4	5.8	28.5	483.0 *	.12
	Comparison	32.7	6.2	33.0		
Feeling Repair <sup>a</sup>	Self-injury	21.4	4.9	23.0	554.5	.05
	Comparison	23.3	2.9	23.0		
Neuroticism <sup>a</sup>	Self-injury	28.8	7.7	31.0	494.5 **	.12
	Comparison	23.3	7.9	25.0		
Total Anxiety	Self-injury	24.3	10.7	24.0	630.0	.00
	Comparison	24.2	12.8	24.0		
Depression	Self-injury	63.3	12.6	68.0	562.5	.04
	Comparison	58.5	13.2	59.0		

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

<sup>a</sup> Self-injury group  $N = 24$ .

Table 3.15

*Results of Nonparametric Tests Comparing Stress Variables Between Self-Injurers and a Matched Comparison Group (N = 25 in each group)*

Dependent variable	Group	M	SD	Median	Wilcoxon Rank	Partial Eta Squared
Daily hassles, frequency	Self-injury	17.0	3.9	16.0	199.0 *	.12
	Comparison	14.4	3.0	14.0		
Daily hassles, stressfulness	Self-injury	47.2	19.8	47.0	203.0 *	.09
	Comparison	36.2	15.1	33.0		
Daily hassles frequency X stressfulness	Self-injury	865.3	531.1	705.0	518.0 *	.12
	Comparison	552.1	319.5	476.0		
Total life events count	Self-injury	6.5	2.5	6.0	617.0	.00
	Comparison	6.2	2.7	6.0		
Total life events, recency	Self-injury	21.3	9.1	19.0	308.5	.00
	Comparison	21.0	10.6	24.0		
Total life events stressfulness	Self-injury	17.4	8.0	16.0	297.5	.00
	Comparison	17.2	10.1	15.0		
Total life events – recency X stressfulness	Self-injury	420.4	317.1	336	597.0	.00
	Comparison	461.0	394.6	380		
Psychological control (average of mother and father <sup>b</sup> )	Self-injury	1.7	.4	1.5	566.0	.04
	Comparison	1.5	.4	1.5		

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

<sup>a</sup> Self-injury group  $N = 24$ .

<sup>b</sup> Self-injury group  $N = 23$  and comparison group  $N = 23$ .



Table 3.16

*Results of Nonparametric Tests Comparing Coping Variables Between Self-Injurers and a Matched Comparison Group (N = 25 in each group)*

Dependent variable	Group	M	SD	Median	Wilcoxon Rank	Partial Eta Squared
Active coping, frequency	Self-injury	2.4	.5	2.4	624.0	.00
	Comparison	2.5	.5	2.5		
Active coping, helpfulness	Self-injury	2.4	.4	2.4	588.5	.03
	Comparison	2.6	.4	2.5		
Distraction coping, frequency	Self-injury	2.5	.5	2.5	624.0	.00
	Comparison	2.4	.7	2.3		
Distraction coping, helpfulness	Self-injury	2.9	.6	2.9	612.0	.01
	Comparison	2.8	.6	2.9		
Avoidance coping, frequency	Self-injury	2.7	.7	2.5	597.5	.02
	Comparison	2.5	.5	2.6		
Avoidance coping, helpfulness	Self-injury	2.1	.6	2.0	631.0	.00
	Comparison	2.1	.5	2.1		
Seeking social support coping, frequency	Self-injury	1.9	.5	1.9	622.0	.00
	Comparison	1.9	.5	1.9		
Seeking social support coping, helpfulness	Self-injury	2.8	.5	2.6	581.5	.01
	Comparison	2.9	.6	2.8		
Coping Count <sup>c</sup>	Self-injury	16.24	5.59	16.00	572.50	.02
	Comparison	17.88	5.62	19.00		

<sup>c</sup> Count of coping strategies used 'often' or 'most of the time'.

Table 3.17

*Results of  $\chi^2$  Tests Comparing the Suicidal Ideation and History of Maltreatment of Self-Injurers to a Matched Comparison Group*

Dependent Variable	Self-injurers ( $N = 25$ ) $N$ (% out of 25)	Comparison group ( $N = 25$ ) $N$ (% out of 25)	$\chi^2$ <sup>a</sup>
Suicidal ideation	3 (12%)	0 (0%)	3.2
Emotional abuse	18 (72%)	10 (40%)	5.2 *
Physical abuse	10 (40%)	4 (16%)	3.6
Sexual abuse	6 (24%)	2 (8%)	2.3
Emotional neglect	14 (56%)	8 (32%)	2.9
Physical neglect	8 (32%)	2 (8%)	4.5 *

\* $p < .05$

<sup>a</sup> When a cell size was less than 5, Fisher's Exact Test used.

*Analyses with female participants only.* To examine whether results were influenced by the male self-injurers, analyses were conducted with the five males excluded from the self-injury group and the five males excluded from the comparison group. The majority of the results did not change when only the female participants were included in the analyses ( $N = 20$  in each group). The only additional significant comparisons identified related to depression, and emotional neglect. Female self-injurers ( $M = 67.4$ ,  $SD = 10.3$ ) had significantly higher depression scores than did the female comparison group ( $M = 59.4$ ,  $SD = 13.9$ ), Wilcoxon Rank = 337.0,  $p < .05$ . In consideration of emotional neglect, 65% of female self-injurers reported experiencing emotional neglect whereas a lower percentage, 30%, of the female matched comparison group reported a history of emotional neglect,  $\chi^2 (1, N = 40) = 4.9$ ,  $p < .05$ .

*Analyses without participants who had taken an overdose or previously attempted suicide.* Five participants had indicated taking an overdose and one participant reported one earlier suicide attempt by cutting. Analyses were conducted without these six participants and their matched comparison participants, in an attempt to control for substance ingestions and self-reported clear suicidal attempts. The remaining self-injurers were referred to as 'pure' self-injurers, in an attempt to differentiate these participants from the complete sample of self-injurers reported earlier.

Only one differing result was found for the 'pure' self-injury group comparisons. 'Pure' self-injurers ( $M = 1.7$ ,  $SD = .5$ ) reported higher levels of psychological control from both mother and father, than the comparison group ( $M = 1.4$ ,  $SD = .4$ ), Wilcoxon Rank = 297.5,  $p < .05$ .

## Discussion

The results from Study 1A, which involved a large convenience sample of young university students, and from Study 1C, which included a smaller subset of Study 1A who were verified as self-injurers during interviews and a matched comparison group of non-self-injurers, show a number of differences between self-injurers and other university students. The differences generally provide support for the traumagenic model of self-injury (Yates, 2004) and an affect regulation model of self-injury (Briere & Gil, 1998; Yates, 2004).

More specifically, as expected based on the traumagenic model of self-injury (Yates, 2004), university self-injurers were higher in negative affect and neuroticism, reported more daily hassles and perceived these as more stressful, and were lower in clarity of feelings in both Study 1A and Study 1C. In addition, in Study 1A when more participants were included, all three aspects of affect regulation - attention to feelings, clarity of feelings and feeling repair - differed for self-injurers compared to university students with no history of self-injury or thoughts of self-injury. In addition to supporting traumagenic model of self-injury, these results provide preliminary support for the affect regulation theory of self-injury (Briere & Gil, 1998). Yet, somewhat contrary to hypotheses, not all affect regulation differences found in Study 1A were replicated in Study 1C, nor did self-injurers report more difficulty maintaining positive affect than the smaller sample of matched university students. These differing results may be a result of small sample sizes.

In addition to having affect regulation difficulties, self-injurers seem to experience more daily hassles and find them more stressful, and differ in their use of and perceptions of the helpfulness of coping strategies. Self-injurers report more hassles in all domains (interpersonal, intrapersonal and task domains), and, in Study 1A, were found to rely on active coping strategies about as much as students with no history of self-injury, but self-injurers report that these strategies are less helpful when compared to other university students. Self-injurers rely more on seeking understanding, emotional support and distraction to cope with stress, but find seeking social support strategies less helpful than others who have no history of self-injury. Again, these differences in coping found in Study 1A were not replicated in the smaller subset of verified self-injurers and matched comparison group included in Study 1C.

Finally, some potential correlates were assessed in Study 1C that were not included in Study 1A. These variables included a history of multiple forms of maltreatment, the number of stressful life events, associated recency of events and

perceived stress, parental psychological control, anxiety, depression, and suicidal ideation. Findings showed that young university students with a recent history of self-injury were more likely to have experienced emotional abuse and physical neglect compared to the matched comparison university students. However, these groups did not differ in the number of life events, associated recency and perceived stressfulness of life events, parental psychological control, anxiety, depression, or suicidal ideation.

Although a large number of comparisons were conducted in this study, it should be noted that only the three measures of emotional regulation, perceived stressfulness of daily hassles, and the frequency of expressing feelings as a coping strategy had effect sizes of .10 or greater in one or both Study 1A and Study 1C. However, these results indicate that aspects of affect regulation, perceived stressfulness of daily hassles, and the use of expressing feelings to cope may have important roles in adolescent self-injury.

The interpretative phenomenological analysis conducted in Study 1B yielded four themes that overlapped with the findings of Study 1A and Study 1C; namely Emotional State, Stressors, Explanation of Self-Injury and Coping. Participants highlighted that the intended aim to engage in self-injury was to deal with their emotive states, however this was not entirely successful as most often the participants reported that the self-injury did not influence their emotional states. Furthermore, the explanations or reasons provided for the initial self-injury were not necessarily the same explanations provided for continued self-injury. The participants varied greatly with respect to their emotional experiences, with self-injurers reporting a range of feelings with great intensity. Descriptive analyses of the self-injurers found that some self-injurers reported difficulty paying attention to their feelings, distinguishing between feelings, and changing uncomfortable emotions whilst maintaining more positive emotions. In general, self-injurers experience elevated levels of different forms of state anxiety. Few participants indicated elevated feelings of depression, and a small number of participants reported having elevated levels of suicidal ideation.

With respect to stressors, again confirming the findings of Study 1A and Study 1C, participants in Study 1B reported the presence of multiple and differing stressors, and described coping with stressors as very challenging. In addition, just over half of the self-injurers have experienced some form of maltreatment, and the majority of participants indicated they do not experience a great deal of perceived stress on a daily basis or in terms of major life events.

All self-injury participants had sought support and assistance from significant others when coping with stressors, and most also engaged in active coping by direct problem solving, seeking understanding, or engaging in cognitive decision making or positive coping restructuring. It appeared that these self-injuring participants engaged in functional forms of coping yet found them unhelpful, and when they did engage in less functional ways of coping they find the strategies helpful.

Comparing those participants who had self-injured in the previous 12 months with those who had not, some differences are worth noting. The participants who had injured themselves in the previous 12 months reported having consumed alcohol and/or used drugs in association with their self-injury behaviours, devoted much attention to their feelings, did not report elevated levels of anxiety, nor elevations in depressive symptomatology. However those participants who reported experiencing emotional abuse, emotional neglect or sexual abuse had all self-injured in the previous 12 months. In addition, the majority of participants who had experienced physical neglect or abuse had self-injured in the previous 12 months. Finally all participants who engaged in less active coping had self-injured in the previous 12 months. These findings seem consistent with the literature highlighting the link between abuse and self-injury in clinical populations, that those participants in this non-clinical university sample who reported a combination of physical neglect and abuse, sexual abuse, and who did not make use of active coping strategies were vulnerable to utilising maladaptive coping strategies, such as alcohol and drug use, and self-injurious behaviours (e.g., Darche, 1990; Laye-Gindhu & Schonert-Reichl, 2005).

There are two important differences regarding the five participants who had taken overdoses. First three of these participants had elevated depression scores, one with a score above the clinical cut-off score, and second, the three participants with elevated suicidal ideation scores that were above the clinical cut-off scores had taken an overdose. Regardless, in the current study female self-injurers who had taken overdoses indicated this to be a self-injurious act rather than an attempted suicide. This contradicts previous views of self-injury as only those behaviours that result in a visible, physical mark or damage (e.g., Walsh & Rosen, 1989), and substance ingestion as too ambiguous to fit into the realm of self-injury. Thus, whereas overdoses may be considered as different to self-injury, they may also differ to suicide attempts when intention is considered.

In addition to investigating self-injury, students who thought about self-injury were identified in Study 1A and compared to self-injurers and other university students.

Consistent with self-injurers, those who thought about self-injury were high in negative affect, had difficulty clarifying their feelings, utilised more avoidance coping, and perceived active coping as less helpful, than the comparison group. Yet, in other ways, including paying more attention to their feelings, using less distraction coping, and perceiving seeking social support strategies as more helpful even though they use them less often, those who thought about self-injury did not significantly differ from other university students with no history of self-injury or thoughts of self-injury.

In sum, a large, university sample was used to identify participants who reported recent self-injury and thoughts of self-injury. Data were collected to test both the affect regulation theory of self-injury (Briere & Gil, 1998; Yates, 2004) and traumagenic model of self-injury (Yates, 2004), while also drawing from a broader developmental psychopathology framework (e.g., Cicchetti & Toth, 1997; Rutter, 1989) to guide study design, conceptualisation of processes underlying the development of self-injurious behaviours, and to identify key constructs for consideration. This study expanded upon previous research in four primary ways. First, the study was designed to investigate affect regulation, as well as emotional, behavioural and cognitive regulation under stress. Second, this study expanded on previous research to consider various aspects of trauma and stress, namely maltreatment (abuse and neglect), major life events, and daily hassles. Third, measures of perceived stressfulness of daily hassles and major life events were included to consider the subjective impact of these events on adolescents. Fourth this study utilised qualitative methods to obtain a phenomenological understanding of adolescent self-injury.

Building on the this initial investigation, the next study (Study 2), was designed to determine whether the associations between self-injury and other constructs found in Study 1 could be replicated within a somewhat younger adolescent clinical sample of self-injurers as compared to other adolescents accessing clinical services. Study 2 also was designed to investigate some of the underlying processes proposed in the affect regulation and traumagenic theories as the mechanisms responsible for self-injurious behaviour. These potential mechanisms, including stress, coping and affect, were examined in a prospective design incorporating daily assessments completed by self-injuring adolescents seeking mental health services and a matched sample of clinical adolescents who reported no history of self-injury.

## CHAPTER 4

### Study 2

The general goal of Study 2 was to examine several critical propositions of the affect regulation theory of self-injury within a traumagenic framework by investigating associations between self-injury and experiences of stress, affect and coping. This was done by studying a sample of adolescents (ages 13 to 17) who were seeking clinical outpatient services. First, as in Study 1, three aspects of affect regulation, namely attention to feeling, clarity of feelings, and feeling repair, were examined, along with measures of coping, positive and negative affect, anxiety, and depression. These potential correlates of self-injury were either assessed in a single testing session or were obtained using a diary method completed by a subset of the same participants once per day for seven days. The daily structured diary methodology allowed for the examination of patterns of affect, stress and coping over time, the comparison of these patterns between self-injurers and clinical non-self injurers, and the identification of particular patterns that occurred on days when young people self-injured or thought about self-injury (and on days before or after self-injury or thoughts of self-injury). Combining the diary method with the completion of more extensive questionnaires both before and after the diary data collection allowed for some consideration of the dynamics and interrelationships of stress (both major life events and daily hassles), coping, affect regulation, affect, individual attributes (i.e., neuroticism), and self-injury behaviour and self-injury ideation.

As in Study 1, maltreatment was also a focus of Study 2, and in addition, the personality construct of neuroticism was incorporated since an interrelation between the person and the environment is emphasised within the developmental psychopathology model.

Study 2 aimed to test the affect regulation model of self-injury (Briere & Gil, 1998; Suyemoto, 1998), utilising a clinical sample of adolescents aged 13 to 17. This was done by investigating anxiety and depression, which are indicators of affect and correlates of affect regulation. Anxiety and depression have been studied in previous research as indicators of affect regulation problems, but no previous research studies have identified whether specific affect regulation difficulties are associated with self-injurious behaviour. To provide more direct assessments of affect regulation to supplement measures of anxiety and depression, three aspects of affect regulation,

namely attention to feelings, clarity of feelings, and feeling repair, were also investigated in Study 2.

In addition, Study 2 incorporated daily measures of affect (positive and negative), hassles, and coping to investigate the day-to-day experience of stress, affect and coping strategies in a clinical sample of adolescents both with and without a history of self-injury. The aim was to examine whether self-injury status was associated with day-to-day stability and change in clinical participants' affect (negative and positive), daily hassles, and their coping behaviours.

A third aim of Study 2 was to examine a history of maltreatment as a correlate of self-injury. Yates's (2004) traumagenic theory of self-injury provided a framework and was used to development hypotheses about links between maltreatment and affect regulation, and affect regulation and self-injury. The most commonly measured aspects of maltreatment (physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect) were investigated as potential correlates of self-injury in Study 1. An additional aspect of stress, namely major life events, was incorporated in Study 2 to examine the association between stressful situations and self-injury.

Other theorists (e.g., Lazarus, 1990) speculate that it is the individuals' perceptions of the stressors that are more important than whether or not the stressor actually occurred. Study 2 also aimed to assess the role of neuroticism in self-injury in a clinical adolescent sample, as neuroticism was found to be higher in self-injuring individuals in Study 1, compared to non-self-injuring adolescents.

Finally Study 2 aimed to compare the clinical and university self-injury samples to determine if variables were consistently significant across the samples of adolescents.

### *Hypotheses*

Seven hypotheses were tested in Study 2A. All hypotheses relied upon comparing clinical adolescents who reported a history of self-injury ("self-injurers") to a matched sample of adolescents who were seeking the same service but reported no history of self-injury ("clinical non-self-injuring adolescents").

#### *Affect and Affect Regulation*

1. In relation to affect regulation, clinical self-injurers will attend more to their feelings, experience poorer clarity of feelings, and more difficulties with feeling repair, than clinical non-self-injuring adolescents.
2. Self-injurers will be higher in neuroticism than clinical non-self-injuring adolescents.



3. Self-injurers will have more anxiety and depressive symptomatology than clinical non-self-injuring adolescents.

#### *Stressful Experiences*

4. Self-injurers will experience more stress (i.e., maltreatment, major life events and daily hassles) compared to clinical non-self-injuring adolescents.
5. Self-injurers will perceive daily hassles and major life events as more stressful, compared to the clinical non-self-injuring adolescents.

#### *Stressful Experience and Maltreatment*

6. When examined simultaneously, daily hassles will be a significant correlate of self-injury, but major life events and maltreatment will no longer be significantly associated with self-injury.
7. The combination of daily hassles, affect regulation, and neuroticism will account for more variance in self-injury than either major life events or maltreatment, alone or in combination.

In relation to the diary data, nine hypotheses were tested. Testing of each hypothesis involved comparing clinical adolescents who had self-injured to a matched sample of clinical adolescents who have not self-injured.

#### *Affect*

1. Self-injurers will have more elevated negative affect across the seven days than the non-self-injurers.
2. Self-injurers will have greater fluctuation across the seven days in their negative affect than the non-self-injurers.
3. Self-injurers will have less positive affect across the seven days than the non-self-injurers.
4. Self-injurers will have greater fluctuation across the seven days in their positive affect than the non-self-injurers.

#### *Stressful Experiences and Coping*

5. Self-injurers will report more daily hassles across the seven days, and perceive their hassles as more stressful, than the non-self-injurers.
6. Self-injurers will use less active coping, more seeking social support to cope with stress, and find seeking social support strategies less helpful across the seven days than the non-self-injurers.

7. Self-injurers will use more avoidant and distraction coping strategies across the seven days, and will find these more helpful when utilised, than the non-self-injurers.
8. There will be a weaker association between the pattern of negative mood over the seven days and the pattern of daily hassles over the seven days among self-injurers as compared to non-self-injurers.
9. There will be a weaker association between the pattern of daily hassles over the seven days and the pattern of each of the four aspects of coping (i.e., active, distraction, avoidance, and seeking support) over the seven days for self-injurers as compared to non-self-injurers.

In addition to these hypotheses, another study aim was to examine positive and negative affect, daily hassles, and coping behaviours on days surrounding and including self-injurious behaviours or thoughts of self-injury. For these analyses, comparisons were made between positive and negative affect, daily hassles, and the four subscales of coping on the day before a self-injury act or thought, the day of the behaviour or thought, and the day after. However, because no previous studies have used a diary method, it was difficult to predict what findings would emerge and these analyses were considered exploratory and descriptive.

## Method

### *Participants*

Participants were adolescents (aged 13 to 17) accessing child and adolescent community mental health outpatient settings in the Logan-Beaudesert Health District, which services the geographical area to the south-east of Brisbane, Queensland, Australia. Two groups of participants were identified at the time of initial contact and assessment with the service (i.e., intake) and acceptance for treatment at the clinic as they meet the clinic's suitability entry criteria. First, individuals were eligible for the "self-injury" group if they were identified at the time of intake as having engaged in self-injurious behaviours. Acts of self-injury were cutting, burning, scratching, self-hitting, pinching, and biting. Individuals with only the following injurious behaviours were excluded from the current study: self-starvation, chronic alcohol ingestion, premature termination of medical intervention, recklessness, taking drugs or pills, emotional derogation, unprotected sex, body piercing, tattooing, cutting hair, and

trimming fingernails. The rationale for the inclusion/exclusion criteria is similar to that used in Study 1, and was previously explained in Study 1.

For comparison to the self-injury group, the second group included adolescents attending the same service who had no history of self-injury. Individuals were eligible for the clinical comparison group if they had never engaged in self-injury behaviours *and* had no thoughts/urges to self-injure identified at the time of intake and acceptance at the clinic. All attempts were made to closely match participants for age, but gender matching proved difficult.

A total of 99 participants and their parent/s were approached about participation in the research study. Six parents (6%) declined the researcher contacting them to provide an explanation of the study. All other parents asked for information to be sent to them about the study or information was provided over the telephone by the researcher. The final sample included 55 adolescents (consent rate of 55%). The primary concerns reported at the time of intake for these 55 adolescents included: mood disturbance, self-injury behaviour, family or peer relationship difficulties, eating disorder symptoms, and/or post traumatic stress symptoms.

*Clinical self-injury group.* The 26 clinical self-injury participants (23 females and 3 males) ranged in age from 13.3 to 17.4 years, with an average age of 14.9 years ( $SD = 1.1$ ) and a median age of 15 years. The primary concerns reported at the time of intake included: post-traumatic stress, anxiety, depression, family or peer relationship difficulties, eating disorder symptoms, and/or self-injury. The majority (69%) of the self-injury group were attending a government public state school, two self-injurers attended a private school, three participants were completing their education through distance education, and three participants were no longer attending school. Self-injurers who were attending school were enrolled in grades 8 to 12, with the median being grade nine. With respect to ethnic background, 23 participants identified as being of white/Caucasian/ European descent, and three participants were of combined Asian and European descent.

Nine participants (35%) were from two biological parent families, seven (27%) participants' parents were either separated or divorced, eight (31%) were from a single parent and one step-parent family, and two (8%) participants have had both parents remarry. The number of siblings (i.e., full biological, step-, and half-) as reported by the participants ranged from one to nine, with the median as three siblings.

Eighteen of the self-injury participants' mothers' (69%) highest level of education was grade 10 or less, four (15%) had completed grade 12, three (11%) had

completed a trade certificate or diploma, and one participant did not provide a response. Half (50%) of the participants' mothers ( $n = 13$ ) were not in the workforce, 11 (42%) were employed, and two (8%) participants did not provide a response regarding their mother's current employment status.

Fourteen self-injury participants (54%) reported that their fathers' highest level of education achieved was grade 10 or less, two (8%) had completed grade 11, three (12%) participants' fathers' had completed grade 12, one father had completed a trade certificate or diploma and two fathers (8%) had completed a university degree. Four participants (15%) did not provide a response regarding their father's education. The majority (91%) of self-injuring participants' fathers' were employed in the workforce, and only two were not. Four participants (15%) did not provide a response regarding their fathers' employment. Finally, self-injuring participants reported the number of closest friends ranging between 1 and 19, with the median number of closest friends reported as 3.5.

One of the self-injurers did not complete the diary forms or the second assessment (including the self-injury interview) and as such could not be included in the majority of the analyses. A second self-injurer was unwilling to complete the self-injury interview. Therefore a total of 24 self-injurers completed all components of this study.

*Clinical comparison non-self-injury group.* The 29 comparison non-self-injuring participants (16 females and 13 males) ranged in age from 13.1 to 16.9 years, with an average age of 14.7 years ( $SD = 1.2$ ), and a median age of 14.6 years. The primary concerns reported at the time of intake were similar to those reported for the clinical self-injury group, and included: post-traumatic stress, anxiety, depression, family or peer relationship difficulties, and/or eating disorder symptoms.

The majority (79.3%) of comparison participants were attending a government public state school, three attended a private school, and three participants were enrolled in distance education. Participants were enrolled in grades 8 to 12, with the median grade reported as grade nine. With respect to ethnic background, 26 participants identified as being of white/Caucasian/ European descent, one participant was of Cook Island descent, one Turkish, and one participant was born in the United States of America.

Ten comparison participants (34%) were from two biological parent families, five participants (17%) reported their parents had separated or divorced, four participants (14%) were living with relatives rather than their parents, one participant identified their family as a single parent father, one participant's father was widowed,

three participants (10%) reported a single parent and a step-parent family, three (10%) reported both parents had remarried, and two participants (7%) were in foster care. Participants reported their number of siblings (i.e., full biological, half- or step-) ranged between one and nine, with two siblings being the median.

Almost half ( $n = 12$ ; 41%) of the comparison participants reported that their mothers' highest level of education was year 10 or less, eight participants' mothers' (28%) had completed grade 11 or 12, two participants' mothers (7%) had completed a trade certificate or diploma, and three participants' father (10%) had completed a university degree. Four participants (14%) did not provide a response regarding their mother's highest level of education. Almost half ( $n = 14$ ; 48%) of the comparison group reported that their mother was employed, 12 mothers (41%) were not employed, and one participant's mother was deceased.

Fifteen comparison participants (52%) reported that their father had completed year 10 or less, three participants' fathers' (10%) had completed 11 or 12, one father had completed a trade certificate or diploma, and two father's had completed a university degree. Seven participants (24%) did not provide a response regarding their father's education. Fourteen non-self-injuring participants (48%) reported their father was employed in the workforce, six (21%) were unemployed, and nine participants (31%) did not provide a response regarding their father's employment. Finally, the number of closest friends reported by non-self-injuring participants ranged from 1 to 19, with the median as 4. Twenty-three comparison participants completed all components of the study.

*Diary participants.* Gaining compliance with the completion of daily diaries was difficult, despite daily prompting from the researcher. Participants were requested to complete a diary for each of seven consecutive days. One self-injurer (female) and seven comparison participants did not complete diary forms for at least five of the seven days, subsequently these eight participants were excluded from the analyses of daily, 7-day average, and 7-day variance in positive and negative affect, hassles, and coping strategies, as well as analyses of the day-by-day associations. A total of 47 participants (self-injurers: 22 females and 3 males, and non-self-injurers: 12 females and 10 males) provided at least five of the seven consecutive daily reports and were included in analyses of diary data.

### *Survey Measures – Initial Assessment*

As in the first study, the same measures of neuroticism, affect regulation, depression, anxiety and suicidal ideation were utilised. A full description of these measures was provided in Chapter 3.

*Affect regulation.* The Trait Meta Mood Scale (TMMS; Salovey et al., 1995) was used to measure affect regulation. The three subscales yielded adequate inter-item correlations in the current study, Cronbach's  $\alpha = .75$  (attention to feelings),  $.80$  (clarity of feelings) and  $.72$  (feeling repair).

*Neuroticism.* The Neuroticism scale of NEO-FFI (Costa & McCrae, 1992) showed a high inter-item correlation in the current study, Cronbach's  $\alpha = .81$ .

*Depression.* The Reynolds Adolescent Depression Scale (RADS; Reynolds, 1987a), was used to measure depression, and had a high inter-item correlation in the current study (Cronbach's  $\alpha = .93$ ).

*Anxiety.* The Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997, 1999) was used to measure anxiety. The SCARED total scale yielded a coefficient alpha of  $.95$ . The subscales also had adequate inter-item correlations, panic disorder  $\alpha = .88$ , generalised anxiety disorder  $\alpha = .87$ , separation anxiety  $\alpha = .82$ , social anxiety  $\alpha = .88$ , and school anxiety  $\alpha = .72$ .

*Suicide Ideation.* The Suicidal Ideation Questionnaire (SIQ) (Reynolds, 1987b), was used to measure suicidal ideation in the current study. In the current study, the SIQ's inter-item correlation was high, Cronbach's  $\alpha = .98$ .

### *Design of the Diary Study*

The diary used in the current study included measures of positive and negative affect, daily hassles and their perceived stressfulness, and coping behaviours utilised to deal with the hassles reported on that day, as well as perceived helpfulness of the coping strategies employed. These diary forms were completed each day for seven consecutive days. In addition, to balance the focus on stressful events, the daily diary ended with the following open-ended question: "Did anything happen today that made you feel good? For example, invited to a party, talked on the telephone, watched a TV show you enjoy? Please describe these enjoyable events...".

These decisions for the diary design were made after reviewing recent studies that have collected written diary data. This review revealed that researchers have structured short-term, repeated measures assessment protocols in variety of ways, and

there is no clear evidence about the “best” structure of the data collection strategy and format (e.g., the number of repeated assessment, the timing between assessments) and the most reliable and valid structure may depend on the study aims and measures to be included. For example, the length of time that participants are required to complete assessments varies from study to study, but the most common procedure includes 14 consecutive days of daily assessments (e.g., Gunthert et al., 1999; Hahn, 2000). A number of researchers have required participants to complete diary entries for one month (i.e., Affleck et al., 1999; Armeli, Carney, Tennen, Affleck, & O’Neil, 2000; Gil et al., 2001; van den Brink et al., 2001), with most requiring one entry per day (Affleck et al., 1999; Armeli et al., 2000; Gil et al., 2001), and other researchers have required four entries per day (e.g., breakfast, lunch, dinner, and bedtime) (e.g., Hedge, Janforf, & Stone, 1985; van der Brink, 2001). Conversely, participants in at least one study (Marco et al., 1999) were randomly prompted to complete a report on average every 40 minutes for 48 hours. Hedge et al. (1985) reported that the daily mood assessment (taken at 10pm) was the most accurate in relation to the peak mood of the day, which was a better fit than any of the momentary reports (i.e., 9am, 1 pm, 4 pm, and 7 pm) or the average of the momentary reports. Thus, it appeared that gathering information for a whole day provides a good representation for the individual for that day.

Procedures used to gain compliance with diary reporting also have varied from study to study. Some researchers have telephoned their participants every night to remind them to complete their diary assessments (e.g., Gunthert et al., 1999). Others have asked participants to return assessments via mail as frequently as every day or two to ensure that responses are completed at the time scheduled (Stone et al., 1995; Suls et al., 1998).

There is also variability in relation to the reporting of stressors in daily diary studies. Some studies involve participants reporting the most negative or bothersome event of the day (e.g., Armeli et al., 2000, Gunthert et al., 1999, 2002; Stone et al., 1995). Other research has involved participants identifying one problem (i.e., issue or conflict) in each of the following areas: work, marital, and other problems (Marco et al., 1999). While Bolger and Zuckerman (1995) had participants complete a checklist of common stressful experiences with emphasis of interpersonal conflict, and participants were also asked to indicate the most stressful event of the day.

Although this method is promising, limitations do exist. One limitation that is repeatedly identified and described in studies of stress is the focus on the most stressful event of the day (Armeli et al., 2000; Gunthert et al., 1999). This technique may

underestimate the total stressfulness of the day, as it does not obtain information regarding all of the stressful events faced by the individual (Armeli et al., 2000). Other limitations may include participant fatigue and participants delaying to complete assessments.

There are difficulties in assessing daily coping strategies, as well. DeLongis and Holtzman (2005) reported that the effects of coping varied from one day to the next, and that some strategies had effects that were limited to the same day, while others persisted across days or shifted direction from one day to the next. It was important to measure coping each day as individuals vary their coping efforts and choices depending on the stressor (Compas, Forsythe, & Wagner, 1988). Furthermore general coping styles aggregated over time appear to have poor correlations with coping in specific situations (Coyne & Racioppo, 2000).

### *Diary Measures*

*Affect.* The child version of the Positive and Negative Affect Scale (PANAS-C; Laurent et al., 1999) is a 27-item self-report scale designed to measure positive and negative affect in individuals. The PANAS-C demonstrated psychometric properties similar to those of the PANAS (Watson et al., 1988). Also a two-factor solution best described the structure of the PANAS-C, which is consistent with the PANAS (Laurent et al., 1999). Participants rate the extent to which they have experienced each mood state during a specified time frame from 1 (*very slightly or not at all*) to 5 (*very much*). When used with short-term instructions, such as today (as was done in the current study) or right now, the PANAS is sensitive to fluctuations in mood, and also exhibits trait-like stability when longer-term instructions are used, such as in the past year or generally (Watson et al., 1988). Examples of positive affect items are excited, happy, and delighted, and examples of negative affect items are sad, ashamed, and afraid. Higher scores indicate higher negative/positive mood experienced by the participant. The alpha coefficients for the NA (negative affect) scale for two separate samples were .94 and .92, and for the PA (positive affect) scale were .90 and .89 (Laurent et al., 1999). In the current study, the interitem correlations were high, Cronbach's  $\alpha = .95$  (Negative affect) and .94 (Positive affect).

*Daily hassles.* Daily hassles were assessed with 23 items combined from the Daily Life Stressors Scale (DLSS; Kearney et al., 1993) and the Daily Stress Inventory (DSI; Brantley et al., 1987). Items selected were those that are expected to most common among young people. Items were modified based on results of pilot testing. An



‘other’ item was also provided to allow participants to describe hassles not provided on the list.

The DLSS is a 30-item measure of the severity of everyday stressful events and aversive arousal for persons aged 7 to 17 years. The scale was designed to measure the total distress due to negative life events within the past week, on a 5-point scale from 0 (*not at all stressful*) to 4 (*very stressful*). In past research, the overall measure and all items, excluding item 21 (i.e., “it is hard for me to come home from school”) were found to be moderately, but significantly, reliable across a one-week period, with the total score test-retest reliability as .74 (Kearney et al., 1993).

Items from the DSI were used to supplement the DLSS items. The DSI is a 58-item self-report measure that asks the respondent to tick stressful events that they have experienced in the past 24 hours (Brantley et al., 1987).

In the current study, the DLSS and DSI scales were combined and slightly modified to make them more appropriate for adolescents. Participants indicated if each event did not occur (0) or, if an event did occur, participants rated the event from 1 (*not at all stressful*) to 5 (*very stressful*). In the current study, scores for the combined DLSS and DSI measured ranged from 0 to 120. Example items on the daily hassles measure are “performed poorly at a task”, “was misunderstood”, and “did not hear from someone I had expected to hear from”. High scores indicate more daily hassles, and more associated perceived stressfulness. Because daily events should not necessarily be internally consistent (i.e., experiencing one event should not increase the probability of experiencing other events) or consistent from day-to-day (especially with events that are outside of the participant’s control) traditional reliability tests are not typically used with event reports (Stone, Neale, & Shiffman, 1993).

*Coping strategies.* A number of coping behaviours were assessed with a subset of items from the Children’s Coping Strategies Checklist (CCSC). The CCSC is a 45-item self-report measure of the coping strategies young people use (Sandler et al., 1994). To reduce length, 30 of the original 45 items were included on the daily diary form (see Appendix C). Two or three items from each subscale that have been found to load most highly on each factor of active coping, distraction, avoidant coping, and seeking social support strategies were included in this study (Program for Prevention Research, 2000). See Chapter 2 for further description of the CCSC. The current study yielded the following coefficient  $\alpha$ ’s: active coping (.85), distraction (.69), avoidant coping (.78), and seeking social support (.89).

As was done in Study 1, the CCSC also was expanded to yield a measure of perceived helpfulness of the coping strategies employed. If participants indicated that they “sometimes”, “often” or “most of the time” used a coping strategy, they were then instructed to indicate how helpful they thought the strategy was in terms of solving of problem or helping them to feel better on a scale of 1 (*not at all*) to 4 (*a lot*).

Self-injury urges/thoughts and behaviours. Incorporated in the CCSC were two additional survey items “Hurt myself on purpose” (as adopted from Ross & Heath, 2002), and “Think about/feel like hurting myself on purpose”. A copy of the diary form can be found in appendix D.

### *Survey Measures – Final Assessment*

Two additional measures were administered following the completion of the diary. These measured stressful life events and maltreatment and were consistent with Study 1.

*Stressful life events.* The Life Events List – Revised (LEL-R; Mazza & Reynolds, 1998), was used to measure stressful life events. The current study yielded a coefficient  $\alpha$  of .61 for LEL-R, .67 for the stressfulness of the life events, and .78 for the combined score of recency and stressfulness.

*Maltreatment.* The Childhood Trauma Questionnaire – Short Form (CTQ-S; Bernstein et al., 2003), was used in the current study to measure maltreatment. In the current study, inter-item correlations were lower than anticipated for physical abuse ( $\alpha = .57$ ) and physical neglect ( $\alpha = .60$ ), but adequate for emotional abuse ( $\alpha = .79$ ), sexual abuse ( $\alpha = .90$ ), and emotional neglect ( $\alpha = .90$ ). The denial/minimalisation items yielded Cronbach’s  $\alpha = .73$ . These consistency scores are lower than those obtained with the university sample in Study 1.

### *Procedure*

Ethical clearance was obtained from the Human Subjects Review Board at Griffith University-Gold Coast, and the ethics committee for the community outpatient mental health settings, through the Princess Alexandra Hospital, Brisbane, Queensland.

Over a 16-month period (August 2004 to January 2006) consecutive adolescents who accessed the service were asked about thoughts, urges, and self-injurious behaviours during the intake and initial assessment procedures at the clinic. Psychologists, social workers, occupational therapists and clinical nurses conducted

these assessments. An essential component of all intake assessments is the determination of self-injury and, therefore, although no data were collected, it is expected that all adolescents who accessed the service were asked these questions. The parents of the adolescents who met the criteria for the self-injury group (“self-injurers”) and comparison non-self-injury group (“comparison”), as outlined above, were briefly phoned by the service’s administration officer seeking permission for a researcher to contact them regarding possible participation in a research project focused on stress and coping in young people. Participation in the research study occurred either while the individual was on the waitlist or early in the assessment and intervention process. Each adolescent participant was required to have her/his parent/s or guardian’s written consent. In addition, each potential adolescent participant was provided with an information sheet about the research, including assurances of her/his confidentiality, and a form that asked for his/her written assent to participate.

Participants first completed questionnaires that took approximately one hour. The Suicidal Ideation Scale (Reynolds, 1987b) was administered first to aid in determining the purpose/function of the self-harm act, and to ensure that the study did not include individuals who were more likely engaging in suicide attempts. Other measures completed at this time included Trait Meta Mood Scale, Neuroticism Scale of the NEO-FFI, Reynolds Adolescent Depression Scale, Screen for Child Anxiety Related Emotional Disorders (SCARED), and demographic details. At the end of the assessment session, participants completed one practice diary form for the previous day with verbal instructions from the researcher.

Final data collection sessions, about 45 minutes in length, were conducted at the end of the seven days whereby participants completed the Life Events List – Revised, and the Childhood Trauma Questionnaire – Short Form. For the self-injurers a short semi-structured interview was conducted to obtain information about the individual’s self-injury. If information obtained had pertinent risk or harm issues, the researcher encouraged the participant to discuss this with his/her therapist, or discussed with the participant what information will be conveyed to the therapist, if the participant is unwilling to discuss the issues with her/his therapist.

*Diary procedure.* Diary data were collected between the two survey assessments. Participants were asked to complete one diary entry (refer to Appendix D) at the end of each day, for a total of 7 consecutive days. Thoughts about and feeling like self-injuring were also incorporated in the study to allow for the possibility that some adolescents, with known self-injurious behaviour, may not engage in self-injury during

the study period, but may think about it. The daily diary also involved participants reporting mood ratings, hassles (including a checklist but also an ‘other’ option), coping strategies employed and perceived effectiveness, and pleasant events.

The daily diary form was piloted for 14 consecutive days with eight adolescents accessing the mental health service prior to recruitment of the study sample. During the pilot study the participants were required to complete the diary forms by themselves each evening as close to bedtime as possible, and the researcher provided a reminder phone-call earlier in the evening. The pilot participants were then requested to return the completed diary forms each day in stamped envelopes provided by the researcher. From feedback obtained from these pilot participants it was highlighted that despite the reminder phone-call each evening, some participants still failed to remember to complete one form each day, and at times completed several forms on a single day. Also, pilot participants had difficulty posting diary forms each day, which may have resulted from the postbox not being easily accessible for participants. It was determined that a better process would be for the researcher to call each participant every evening and record the participants’ responses. Also, most pilot participants reported the 14 consecutive days as being too long in duration resulting in decreasing motivation and lack of completion of diary forms. Therefore, the diary was reduced to seven days to minimise participant fatigue and maximise their interest and participation.

Participants were phoned by the researcher each evening at a previously agreed upon time to complete the diary form. This meant that the diary forms were not completed at bedtime but rather earlier in the evening, so the participants were instructed to “think about the last 24 hours” when completing the diary forms. The participant referred to a copy of the diary form and the researcher recorded the participant’s responses. On the rare occasion when the participant could not be reached on a certain day, a message was left requesting that the participant complete the diary form before bedtime that same evening.

## Survey and Qualitative Results

### *Preliminary Analyses and Analytic Plan*

Prior to conducting tests of hypotheses, the data were inspected to determine accuracy of data entry and outliers. Initial examination of distributions in conjunction with formulae proposed by Tabachnick & Fidell (2001) detected some outliers for a number of the different variables. However given that a clinical sample was utilised

extreme values were expected on the measures, and as such no participants were removed from the primary analyses. Nevertheless, the influence of outliers on results were examined throughout the analyses.

The key assumption of the *t*-test was evaluated, namely that of normality of distributions (i.e., skewness and kurtosis). Because of the significant positive skew, the scales of maltreatment were dichotomised as was done in Study 1. The five aspects of maltreatment were recoded as 1 (*yes*) or 0 (*no*) utilising the classification categories specified by Bernstein and Fink (1998), with all three classifications of maltreatment (i.e., low, moderate and severe) recoded as 1 (*yes*). Overall, the preliminary screening detected some other violations of the normality assumption. As such, as was done in Study 1, nonparametric group comparisons were used in the current study rather than *t*-tests. The rationale for using nonparametric statistics was previously outlined in Study 1C. Table 4.1 provides descriptive statistics and Table 4.2 provides correlations for all measured variables in Study 2.

Table 4.1

*Descriptive Statistics of Variables Measured for Study 2*

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Median
Attention to feelings	55	44.76	7.05	44.00
Clarity of feelings	55	33.40	6.76	33.00
Feeling repair	55	16.98	4.51	17.00
Neuroticism	55	29.09	7.69	29.00
Anxiety	55	31.60	17.02	29.00
Depression	55	74.38	15.51	75.00
Life events count	50	6.76	3.02	6.00
Life events, recency	50	21.70	10.85	19.50
Life events, stressfulness	50	16.04	9.63	13.00
Life events, happened X stressfulness	50	420.30	409.55	279.00
Suicidal ideation	55	51.65	44.51	34.00
Emotional abuse	50	11.54	4.54	11.00
Physical abuse	50	6.88	2.26	6.00
Sexual abuse	50	6.34	3.47	5.00
Emotional neglect	50	11.96	4.99	11.50
Physical neglect	50	7.14	2.60	7.00

Table 4.2

*Pearson Correlations Between All Independent Variables in Study 2*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Attention to feelings	---												
2. Clarity of feelings	.16	---											
3. Feeling repair	.03	.29 *	---										
4. Neuroticism	.19	-.43 **	-.41 **	---									
5. Anxiety	.13	-.30 *	-.14	.56 **	---								
6. Depression	.05	-.56 **	-.43 **	.73 **	.61 **	---							
7. Life events, recency	-.05	-.05	-.11	.35 *	.08	.35 *	---						
8. Life events, stressfulness	.23	-.16	-.04	.36 *	.19	.40 **	.71 **	---					
9. Suicidal ideation	-.04	-.23	-.16	.20	.13	.41 **	.24	.11	---				
10. Emotional abuse	.02	-.23	-.32 *	.46 *	.30 *	.43 **	.29 *	.23	.23	---			
11. Physical abuse	.01	-.04	-.28 *	.10	.08	.30 *	.07	.05	.18	.27	---		
12. Sexual abuse	-.05	-.35	.01	.21	.17	.27	.32 *	.21	.34 *	.32 *	-.01	---	
13. Emotional neglect	-.08	-.22	-.22	.20	.07	.42 **	.26	.26	.16	.35 *	.33 *	.14	---
14. Physical neglect	-.07	-.10	-.22	.03	.24	.27	.11	.08	.13	.23	.31 *	.03	.50 **

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

### *Description of Self-Injury Behaviour and Thoughts*

Table 4.3 provides a summary of the age of onset of self-injury, the types of behaviours, and the frequency of self-injury for those who have previously self-injured but reported no longer doing so, and participants who current engage in self-injurious behaviour.

*Recency and frequency of self-injury.* Twenty of the 24 participants (83%) had self-injured in the previous 6 months (17 females, and 3 males; see Table 4.3). The majority of participants (79%) had self-injured three or more times. Three participants indicated that they hurt themselves as frequently as once a week, and one other indicated that they were self-injuring approximately once a fortnight. All four participants with the most frequent self-injury behaviours were female. Of the remaining five participants, three reported only one incident of self-injury, and two participants reported having self-injured on two occasions. Of these five participants all had hurt themselves in the last 12 months.

Most of the participants reported that their self-injury behaviour had not changed over time. A little over half of the participants ( $n = 15$ ; 63%) reported utilising one type of self-injury behaviour only, while 9 participants (37%) indicated that they had utilised additional self-injury behaviours with later incidents of self-injury. Five female participants were continuing to hurt themselves at least fortnightly, and one male and two female participants reported that they self-injured at least once per month.

*Age of onset.* The age of onset of self-injurious behaviours varied between 11 and 15 years, with a mean age of onset of 13 years. Males' first self-injury act occurred at an average age of 14 years ( $SD = 1.7$  years), whereas females' first self-injury behaviours was at an average age of 13 years ( $SD = 1.1$  years). Similarly, females first thoughts of self-injury occurred at an average age of 12.5 ( $SD = 1.3$  years) whereas males reported first having thoughts at an average age of 14 years ( $SD = 1.7$  years).

The majority of participants (75%) indicated they recalled initial thoughts or urges to self-injure at the same age as their first self-injury act. Of the remaining six participants, three reported a 1-year gap between the initial self-injury thought or urge and the first self-injury behaviour, one participant reported a 3-year gap, one participant reported a 4-year gap, and one participant did not recall the age at which initial thoughts or the urge to self-injure occurred.

Table 4.3

*Self-Injurious Behaviours and Frequency of Behaviour Reported By Each Self-Injurer*

Participant	Gender	Current Age (years)	Age of onset of self-injury (years)	First self-injurious behaviour	Later self-injurious behaviours	Previous frequency of self-injury	Current frequency of self-injury
P-S	Female	13.5	11	Cut arm with sharpener blade	Cut with sharpener blade	At least once a fortnight	At least once a fortnight
P-D	Female	13.8	13	Cut leg with glass	Cut arms or legs with glass or scissors	At least once a month	“Not for a few months”
P-L	Female	13.8	11	Cut arm with scissors	Cut arm or thigh with razor or sharpener blade, tablet overdose	Every day	At least once a month
P-M	Female	13.8	13	Cut arm with sharpener blade	None (1 incident only)	Once only	Once only
P-P	Female	13.8	13	Cut arm with razor	None (One incident only)	Once only	Once only
P-O	Female	14.1	14	Hit self with hands	None (1 incident only)	Once only	Once only
P-N	Female	14.2	12	Cut arm with razor	Cut wrist with razor	2 – 3 times per week	At least once a month
P-Q	Female	14.3	12	Cut arms with razor	Cut with scissors, ‘ABC torture’, aerosol can burns	2 – 3 times per week	2 – 3 times per week
P-W	Female	14.3	12	Cut with window scraper	Cut with sharp objects	Couple of times per year	Couple of times per year
P-X	Female	14.3	12	Cut wrist with sharpener	Cut with sharpener blade, scratch leg or wrist	Every day	Everyday
P-R	Female	14.5	12	Cut arm with scissors	Cut arm with scissors, knife or razor	Couple of times per year	Couple of times per year



Participant	Gender	Current Age (years)	Age of onset of self-injury (years)	First self-injurious behaviour	Later self-injurious behaviours	Previous frequency of self-injury	Current frequency of self-injury
P-I	Female	14.9	14	Cut wrist with knife	Cut wrist with knife or razor	Everyday	Every 2 to 3 months
P-E	Female	15.0	13	Cut legs	Cut legs	At least once a month	“Not for a few months”
P-G	Female	15.2	14	Panadol overdose	Panadol overdose, cut wrist with razor or knife	2 – 3 times per week	Every week
P-V	Female	15.2	14	Cut wrist with razor	Cut wrist	Twice ever	Twice ever
P-J	Female	15.3	14	Cut arm with stanley knife	Cut arm	Every week	“Not for a few months”
P-A	Female	15.5	14	Cut arm with razor	Cut arm, engraved leg	At least once a fortnight	“Not for a few months”
P-C	Female	15.6	14	Punched wall, cut hand	Cut arm with scissors	Every 2 to 3 months	“Not for a few months”
P-T	Female	15.8	14	Cut arm with sharpener blade	Cut arm or thigh with sharpener blade, scissors or knife	At least once a fortnight	2 – 3 times per week
P-U	Female	15.8	15	Cut wrist with pocket knife	Cut wrist with pocket knife	Twice ever	Twice ever
P-B	Female	16.6	13	Engraved arm with Stanley knife	Cut arm with scissors or razor, lighter burns	2 – 3 times per week	“Not for a few months”
P-F	Male	15.6	15	Cut arm with stanley knife	Cut arm	“Rarely”	“Not for a few months”
P-H	Male	15.8	12	Pushed piece metal into skin	Pushed piece metal into skin	At least once a month	“Not for a few months”
P-K	Male	17.4	15	Scratched arm with clay tool	Scratched arm with clay tool	At least once a fortnight	At least once a month

*Self-injury, impulsive nature of self-injury, and substance use.* A little under half (42.7%) reported that their self-injurious behaviours were impulsive acts. The remainder of the participants reported thinking about injuring themselves from “several minutes” to “all day” before injuring themselves. Participants were asked whether they consumed alcohol or used drugs at the time they injured themselves. Only one participant reported having used marijuana at the time of hurting herself, yet she highlighted that there were other times she had not used drugs when self-injuring.

*Self-injury and perceived pain.* Participants were asked to indicate whether they experienced physical pain at the time of their self-injury. Only one participant reported severe physical pain at the time of self-injury, approximately equal numbers of the participants reported ‘a little pain’ or ‘no pain’ (45.8% and 41.7%, respectively), and two participants reported ‘moderate’ at the time of the self-injury.

*Reasons for engaging in self-injury.* Participants were asked to provide explanations or reasons for injuring themselves. Participants were given the opportunity to generate their own reasons prior to viewing a list of possible reasons generated from the literature. All reasons endorsed are presented in Table 4.4 and participants’ primary reasons are provided in Table 4.5. Although a large number of participants (42%) could not determine the one main reason for engaging in self-injury, the majority of participants indicated the use of self-injury was primarily to cope with or regulate their emotions and/or affect. The remaining participants appeared to be communicating anger either to others or themselves.

Participants were asked to recall their associated feelings before, during, and after their most recent incident of self-injury (see Table 4.6 for a summary). A range of emotions were reported with some participants reporting anger/rage, annoyance or frustration *prior* to hurting themselves, whereas other participants reported feeling anxious, worried or sad. The participants recalled feeling differently *during* compared to *following* the self-injury. Four participants reported a comfortable feeling (“relaxed”, “relief” or “peaceful”) after injuring themselves. Most of the participants who indicated an initial relief/release/calm feeling reported it being followed by uncomfortable feelings (i.e., annoyance, anger, embarrassment, guilt) and they tended to be angry with themselves for having self-injured, and experienced associated embarrassment and guilt for the act, and were worried that someone would discover their self-injury.

Table 4.4

*Number Of Participants Who Endorsed Each Reason For Engaging In Self-Injury.*

Reason	<i>N</i>
To get out my frustrations	12
To reduce emotional pain	12
To express my anger towards others	10
To feel less depressed	10
To release me from my worries	9
To hurt myself because I deserve it	7
To stop feeling so overwhelmed	6
To relax	6
To punish myself for being bad in some way	6
To reduce tension	6
To feel concrete pain because the other pain is so overwhelming	5
To make myself feel better	2
To deal with anger (self-generated)	2
To forget everything else (self-generated)	1
To deal with stress (self-generated)	1

Table 4.5

*The Main Reason Endorsed By Participants For Engaging In Self-Injury.*

Reason	<i>N</i>
To feel less depressed	4
To hurt myself because I deserve it	3
To get out my frustrations	2
To feel concrete pain because other pain overwhelming	2
To reduce emotional pain	2
To express my anger towards others	1
To release stress (self-generated)	1
Not stated	10

Table 4.6

*Retrospective Interview Reports of Feelings Before, During and After Last Incident of Self-Injury*

Participants	Feelings		
	Before	During	After
P-A	Angry, sad	Angry, sad	Relief
P-B	Sad	Sad	Ashamed
P-C	Lonely, angry, sad	Annoyed, sad, relief	Relief
P-D	Lonely, annoyed, angry, sad, tense	Annoyed, angry, sad	Sad
P-E	Angry, sad	Angry	Guilty, sad
P-F	Angry	Angry	Annoyed, angry
P-G	Annoyed, angry, anxious	(Not stated)	Guilty, calm
P-H	Angry	Angry	Annoyed, calm
P-I	Annoyed, angry	Relaxed, calm	Guilty, ashamed
P-J	Angry, overwhelmed	Relief	(Not stated)
P-K	Lonely, annoyed, angry, tense	Relief	Guilty, ashamed
P-L	Angry, sad, tense	Sad	Sad
P-M	Angry, sad	Angry	Scared
P-N	Angry, tense	Guilty, relief	Annoyed
P-O	Annoyed, angry	(Not stated)	Embarrassed
P-P	Angry, sad	(Not stated)	(Not stated)
P-Q	Lonely, angry, sad	Relief	Lonely, angry, sad
P-R	Lonely, angry, sad	Lonely, angry, sad, tense	Relaxed
P-S	Angry	Rage, anxious, sad	Lonely, tense
P-T	Worthless, angry, sad	Relief	Peaceful, calm
P-U	Lonely, annoyed, hurt, sad	(Not stated)	Scared, ashamed
P-V	Lonely, anxious, sad, tense	Anxious, angry	Sad
P-W	Sad	Angry, sad	Angry, calm
P-X	Worthless, hopeless, sad	Happy, relief	Guilty, ashamed

*Intervention for self-injury.* Only one participant reported ever requiring any medical intervention for her self-injury (stitches). This, along with reports of no or minimal pain, suggests that the participants' self-injurious behaviours usually caused minor or no physical damage. An alternative possibility is that the self-injurers medical treat themselves on occasions when they should seek professional medical treatment, although few acknowledged that this was so.

*Clinical significance of the scores on the measures of psychopathology.* In comparison to the mean scores for an adolescent sample the majority of both clinical self-injury and non-self-injury participants indicated some degree of elevated anxiety on the SCARED scale that was above the clinical cut-off score (Birmaher et al., 1997). Fourteen (of 26) self-injury participants and nine (of 29) non-self-injury participants reported that they experienced elevated generalised anxiety symptoms (see Tables 4.7 and 4.8). Twenty self-injurers and 19 non-self-injurers reported symptoms of social anxiety that were above the clinical cut-off score. Fifteen self-injurers and 17 non-self-injurers reported elevated symptoms of separation anxiety. Seventeen of both self-injury and non-self-injury participants' scores indicated that they experienced elevated panic disorder symptoms, and 16 of both groups reported elevated symptoms of school anxiety. However, not all participants reported high levels of anxiety. Two self-injury and four non-self-injury participants' scores for each of the SCARED subscales were below the clinical cut-off scores reported by Muris et al. (2002), indicating they experience little anxiety. These results indicate that the majority of clinical self-injurers in this study experience elevated levels of anxiety, which was similar to the clinical non-self-injury group.

In reviewing the Reynolds Adolescent Depression Scale, scores for 15 self-injury participants were above the clinical cut-off score (Reynolds, 1987a). Nine clinical non-self-injury participants had elevated depression scores. Nineteen self-injury participants in this clinical study reported scores for suicidal ideation that were above the clinical cut-off score. Suicidal ideation was elevated for the minority of non-self-injury participants. Interestingly, no self-injurer was without an elevation in some aspect of psychopathology, yet the psychopathology scores for three non-self-injurers' were all below clinical cut-off scores. It appears that the clinical and university samples of self-injurers were similarly high in anxiety and low for suicidal ideation, however more clinical self-injurers reported elevated in depression compared to the university self-injury group. A summary of scores indicating psychopathology can be seen in Tables 4.7 (clinical self-injurers) and 4.8 (clinical non-self-injurers).

*Clinical significance of the scores on the measures of maltreatment.* The majority of both groups of participants reported experiencing some type of maltreatment (see Tables 4.9 and 4.10). This was indicated by the Child Trauma Questionnaire-Short Form subscale scores that were higher than the clinical cut-offs reported by Bernstein et al. (2003). The most commonly reported type of maltreatment was emotional abuse, with 20 self-injury and 15 non-self-injury participants reported having experienced emotional abuse. Also 16 self-injury and 14 non-self-injury participants reported experiencing emotional neglect whilst growing up. Fourteen of these self-injury and 12 of the non-self-injury participants reported experiencing both emotional abuse and emotional neglect.

Nine self-injury and two non-self-injury participants reported sexual abuse. Nine self-injury and eight non-self-injury participants reported experiencing physical neglect while growing up. Physical abuse was reported by seven of both self-injurers and non-self-injurers. Of the 7 non-self-injury and 1 self-injury participants who did not report abuse or neglect, four non-self-injury and the one self-injury participants' scores indicated a possible underreporting of maltreatment according to the under-reporting scale of the CTQ-Short Form. Taking these findings into account and consistent with their comments during the interview, while no single form of maltreatment was reported by all participants, it seems that the majority of participants in this sample have experienced some aspect of abuse or neglect. Emotional abuse and emotional neglect were the forms of maltreatment most often reported by the clinical self-injurers. This differs to the university self-injury sample, in that physical abuse and neglect were the most frequent forms of maltreatment reported. A summary of scores indicating maltreatment can be seen in Tables 4.9 (clinical self-injurers) and 4.10 (clinical non-self-injurers).

#### *Comparisons of the Self-injury Group to the Clinical Comparison Group*

To determine whether there were significant differences existed between self-injurers and a comparison group who was also accessing clinical services in the aspects of emotion regulation, symptomatology (i.e., anxiety, depression, and suicidal ideation), neuroticism, and stressful life events, 10 nonparametric group comparisons were conducted. Four of 10 comparisons revealed significant differences between the two groups (see Table 4.11).

Table 4.7

*Profile of Self-Injury Participants with Elevated Scores for Aspects of Psychopathology*

	Age (years)	Generalised Anxiety	Panic Disorder	Social Anxiety	Separation Anxiety	School Anxiety	Depression	Suicidal Ideation
P3	15.50	None	None	<b>Elevated **</b>	None	None	None	None
P7	13.75	None	None	None	None	None	None	<b>Elevated **</b>
P10	16.58	None	None	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P13	15.58	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P16	13.75	<b>Elevated **</b>	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P21	15.00	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None
P23 a	15.58	<b>Elevated **</b>	None	<b>Elevated **</b>	None	<b>Elevated **</b>	None	<b>Elevated **</b>
P25	15.17	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P26 a	15.83	None	None	<b>Elevated **</b>	None	None	None	<b>Elevated **</b>
P27	16.92	<b>Elevated **</b>	None	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None
P28	14.92	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	None	<b>Elevated **</b>	<b>Elevated **</b>
P29	15.25	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	None	None	<b>Elevated **</b>
P31 a	17.42	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P36	13.83	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P40	14.83	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None
P41	14.17	None	None	None	None	None	None	<b>Elevated **</b>
P42	14.08	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	<b>Elevated **</b>	None

	Age (years)	Generalised Anxiety	Panic Disorder	Social Anxiety	Separation Anxiety	School Anxiety	Depression	Suicidal Ideation
P43	13.83	None	None	<b>Elevated **</b>	<b>Elevated **</b>	None	None	None
P44	14.17	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P45	13.50	None	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	None	<b>Elevated **</b>
P46	13.33	<b>Elevated **</b>	None	None	None	None	None	<b>Elevated **</b>
P47	15.83	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P48	15.17	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	<b>Elevated **</b>	None	<b>Elevated **</b>
P49	15.75	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P52	14.25	<b>Elevated **</b>	None	<b>Elevated **</b>	None	None	None	None
P53	14.25	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>

\*\* Above clinical cut-off score

<sup>a</sup> Male.





Age (years)	Generalised Anxiety	Panic Disorder	Social Anxiety	Separation Anxiety	School Anxiety	Depression	Suicidal Ideation
P30 a	None	None	<b>Elevated **</b>	None	None	None	None
P32 a	<b>Elevated **</b>	None	<b>Elevated **</b>	None	<b>Elevated **</b>	None	None
P33	None	None	None	<b>Elevated **</b>	None	None	None
P34	None	None	None	None	None	None	None
P35	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	None
P37	<b>Elevated **</b>	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	None
P38	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None
P39 a	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None
P50	None	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	None
P51	<b>Elevated **</b>	None	None	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>
P54	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	None	None
P55	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>	<b>Elevated **</b>

\*\* Above clinical cut-off score

<sup>a</sup> Male.

Table 4.9

*Profile of Self-Injury Participants with Classifications for Aspects of Maltreatment*

	Age (years)	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Possible under- reporting (Denial score)
P3	15.50	<b>Low</b>	None	None	None	None	Yes
P7	13.75	-	-	-	-	-	-
P10	16.58	<b>Low</b>	None	None	None	None	No
P13	15.58	<b>Low</b>	<b>Low</b>	None	<b>Low</b>	None	No
P16	13.75	<b>Moderate</b>	<b>Low</b>	None	<b>Moderate</b>	None	No
P21	15.00	<b>Low</b>	None	None	None	None	No
P23 a	15.58	None	None	None	<b>Low</b>	None	Yes
P25	15.17	<b>Severe</b>	<b>Low</b>	<b>Moderate</b>	<b>Severe</b>	<b>Severe</b>	No
P26 a	15.83	<b>Moderate</b>	None	None	<b>Moderate</b>	None	No
P27	16.92	<b>Severe</b>	None	None	<b>Low</b>	<b>Moderate</b>	No
P28	14.92	<b>Low</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Low</b>	None	No
P29	15.25	<b>Moderate</b>	None	None	None	None	No
P31 a	17.42	<b>Moderate</b>	None	None	<b>Low</b>	<b>Low</b>	No
P36	13.83	<b>Moderate</b>	None	<b>Severe</b>	<b>Low</b>	None	No
P40	14.83	<b>Moderate</b>	None	<b>Moderate</b>	None	None	Yes
P41	14.17	<b>Low</b>	None	<b>Low</b>	None	None	No

	Age (years)	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Possible under-reporting (Denial score)
P42	14.08	<b>Low</b>	None	None	<b>Severe</b>	<b>Low</b>	No
P43	13.83	None	None	None	<b>Moderate</b>	<b>Low</b>	No
P44	14.17	<b>Severe</b>	<b>Severe</b>	<b>Severe</b>	<b>Moderate</b>	<b>Moderate</b>	No
P45	13.50	<b>Moderate</b>	None	<b>Moderate</b>	None	None	No
P46	13.33	<b>Moderate</b>	<b>Moderate</b>	None	<b>Severe</b>	<b>Low</b>	No
P47	15.83	<b>Severe</b>	<b>Low</b>	None	<b>Severe</b>	<b>Low</b>	No
P48	15.17	<b>Low</b>	None	None	None	None	No
P49	15.75	None	None	None	None	None	Yes
P52	14.25	<b>Low</b>	None	<b>Low</b>	<b>Low</b>	None	No
P53	14.25	<b>Moderate</b>	None	<b>Severe</b>	<b>Moderate</b>	<b>Low</b>	No

<sup>a</sup> Male.

- Not completed.

*Note.* Classifications derived from Bernstein and Fink (1998).

Table 4.10

*Profile of Non-Self-Injury Participants with Classifications for Aspects of Maltreatment*

	Age (years)	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Possible under-reporting (Denial score)
P1 a	13.75	-	-	-	-	-	-
P2 a	14.58	<b>Moderate</b>	<b>Low</b>	None	<b>Moderate</b>	None	No
P4 a	16.92	<b>Low</b>	None	None	<b>Low</b>	None	No
P5	16.83	None	None	None	<b>Low</b>	None	No
P6 a	15.50	<b>Low</b>	None	None	<b>Moderate</b>	<b>Low</b>	No
P8	13.58	<b>Moderate</b>	None	<b>Low</b>	<b>Severe</b>	<b>Moderate</b>	No
P9 a	13.50	None	None	None	None	None	No
P11 a	13.17	None	None	None	None	None	Yes
P12	13.08	<b>Severe</b>	<b>Low</b>	None	<b>Severe</b>	<b>Severe</b>	Yes
P14 a	13.92	<b>Low</b>	<b>Moderate</b>	None	<b>Low</b>	<b>Moderate</b>	No
P15	14.25	-	-	-	-	-	-
P17 a	14.00	-	-	-	-	-	-
P18 a	16.42	<b>Severe</b>	<b>Moderate</b>	None	<b>Severe</b>	<b>Low</b>	No
P19	15.83	<b>Low</b>	None	None	None	None	Yes
P20	16.48	None	None	None	None	None	Yes
P22 a	14.25	None	None	None	None	None	No

Age (years)	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect	Possible under-reporting (Denial score)
P24	None	None	None	<b>Low</b>	None	No
P30 a	None	<b>Low</b>	None	None	<b>Low</b>	No
P32 a	<b>Low</b>	None	None	<b>Severe</b>	None	No
P33	None	None	None	None	None	No
P34	None	None	None	None	None	Yes
P35	<b>Severe</b>	<b>Severe</b>	None	<b>Low</b>	None	No
P37	<b>Low</b>	<b>Low</b>	None	None	None	No
P38	-	-	-	-	-	-
P39 a	None	None	None	None	None	Yes
P50	<b>Low</b>	None	None	<b>Low</b>	<b>Low</b>	Yes
P51	<b>Low</b>	None	<b>Moderate</b>	<b>Low</b>	None	No
P54	<b>Low</b>	None	None	None	None	Yes
P55	<b>Low</b>	None	None	<b>Low</b>	<b>Low</b>	Yes

<sup>a</sup> Male.

- Not completed.

Note. Classifications derived from Bernstein and Fink (1998).

Self-injurers were significantly higher in neuroticism, had more difficulty with clarity of feelings, experienced more suicidal ideation, and had more depressive symptoms than the clinical non-self-injuring adolescents. Post-hoc analyses determined that self-injurers ( $M = 9.44$ ,  $SD = 5.52$ ) had more symptoms of panic disorder than non-self-injurers ( $M = 6.45$ ,  $SD = 5.41$ ), Wilcoxon Rank = 695.0,  $p < .05$ ; and an eta value of .07. These results support the hypotheses that self-injurers have more difficulty with understanding their feelings, and experience more depressive symptomatology. Other hypotheses that expected self-injurers to pay more attention to their feelings, to have more difficulty repairing their feelings, and to experience more anxiety were not supported, and the expectations that major stressful life events would be more common in self-injurers than others was not supported. Only three variables had eta values greater than .10; these were clarity of feelings, depression, and suicidal ideation (refer to Table 4.11).

Effect sizes for the following aspects of affect regulation, namely neuroticism, clarity of feelings, and anxiety, were similar across the three samples (i.e., Study 1A, Study 1C, and Study 2). The effect sizes were higher in the community screening study for attention to feelings and feeling repair, which indicate that these variables may have emerging differences between the groups, however the current sample was too small to show such significant differences.

In addition to the five (i.e., four planned and one post-hoc) significant differences found between self-injurers and the comparison group reported in Table 4.12, self-injurers, compared to non-self-injurers, were more likely to report a history of emotional abuse and sexual abuse, but not physical abuse, emotional neglect or physical neglect (see Table 4.8). Overall, 88% of self-injurers reported having experienced emotional abuse, whereas 60% of the clinical comparison group reported experiencing such abuse; this was a significant difference:  $\chi^2(1, N=50) = 5.1$ ,  $p < .05$ . Also, 36% of self-injurers reported experiencing sexual abuse, whilst only 8% of the clinical comparison group reported a history of sexual abuse,  $\chi^2(1, N = 50) = 5.7$ ,  $p < .05$ . In sum, these findings partially support the hypothesis that a higher proportion of self-injurers would have a history of maltreatment when compared to a clinical non-self-injury group of adolescents.

Table 4.11

*Results of Nonparametric Tests Comparing Self-Injury and the Clinical Comparison Group Participants on Measured Variables*

Dependent variable	Group	N	M	SD	Median	Wilcoxon test value	Partial Eta Squared
Neuroticism	Self-injury	29	31.5	6.3	31.5	694.0 *	.09
	Comparison	26	29.6	8.3	27.0		
Attention to feelings	Self-injury	29	44.9	7.6	43.5	807.5	.00
	Comparison	26	44.6	6.6	45.0		
Clarity of feelings	Self-injury	29	30.5	6.0	30.5	543.0 **	.17
	Comparison	26	36.0	6.4	37.0		
Feeling repair	Self-injury	29	15.9	4.1	17.0	620.5	.05
	Comparison	26	17.9	4.7	18.0		
Anxiety	Self-injury	29	33.5	15.6	32.0	750.5	.01
	Comparison	26	29.9	18.4	28.0		
Depression	Self-injury	29	81.7	12.3	80.0	620.0 **	.20
	Comparison	26	67.9	15.4	70.0		
Suicidal ideation	Self-injury	29	69.7	42.4	59.5	607.5 **	.15
	Comparison	26	35.5	40.5	16.0		
Life events count	Self-injury	25	7.2	2.7	7.0	574.5	.03
	Comparison	25	6.3	3.3	5.0		
Life events, recency	Self-injury	25	24.0	10.3	22.0	452.5	.06
	Comparison	25	19.4	11.1	17.0		
Life events, stressfulness	Self-injury	25	18.3	10.2	16.0	455.0	.05
	Comparison	25	13.8	8.7	12.0		
Life events – happened X stressfulness	Self-injury	25	504.2	469.7	330.0	552.0	.04
	Comparison	25	336.4	107130.1	187.0		

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



Table 4.12

*Results of Chi-Square Analyses Comparing History of Abuse between Self-Injurers and the Clinical Comparison Groups*

Dependent Variable	Self-injurers ( <i>N</i> = 24)	Comparison group ( <i>N</i> = 25)	$\chi^2$ test <sup>a</sup>
Emotional abuse	22 (88%)	15 (60%)	5.1*
Physical abuse	7 (28%)	7 (28%)	0.0
Sexual abuse	9 (36%)	2 (8%)	5.7*
Emotional neglect	16 (64%)	14 (56%)	0.3
Physical neglect	9 (36%)	8 (32%)	0.1

\*  $p < .05$

<sup>a</sup> If a cell size was less than 5, the Fisher's Exact Test was used.

*Analyses with female participants only.* Analyses were repeated with female participants only ( $n = 39$ ). Three of the five differences reported in Tables 4.11 and 4.12 remained significant. There were no longer significant differences in neuroticism and panic disorder symptoms when self-injurers and non-self-injurers were compared.

Similar results to those with all participants included in analyses were found for clarity of feelings, depression and suicidal ideation, such that female self-injurers reported significantly lower clarity of feelings, more depressive symptoms, and had more suicidal ideation, than the female comparison group. In addition, female self-injurers were found to be significantly lower in feeling repair ( $M = 15.78$ ,  $SD = 4.35$ ) than the female comparison group ( $M = 18.69$ ,  $SD = 3.89$ ), Wilcoxon Rank = 388.00,  $p < .05$ .

The only aspect of maltreatment that was found to be significant for female participants was that of emotional abuse, whereby significantly more female self-injurers reported experiencing such abuse, compared to female non-self-injurers. Sexual abuse was no longer significant when only females were included in analyses, which is suggestive of a possible history of sexual abuse being present in the majority of females who present to mental health services. Overall the exclusion of male participants did not dramatically change the results, and did not justify further analyses containing only female participants.

*Analyses excluding participants who had a history of tablet overdoses.* Analyses were repeated with the omission of the two self-injuring participants who have also taken tablet overdoses. The remaining self-injurers are referred to as 'pure' self-injurers, in an attempt to differentiate these participants from the complete sample of self-injurers

reported earlier. The same group differences that were significant in the previous analyses with the full sample of participants remained significant in these analyses with only the ‘pure’ self-injurers and the clinical comparison group. The exclusion of the participants who had taken at least one overdose had little impact on the results of analyses.

#### *Multivariate Prediction of Self-Injury Behaviour*

Binary logistic regression analyses were to be performed with self-injury as the outcome, to test a number of predictive models. However further statistics to test hypotheses relating to prediction of self-injury were deemed inappropriate and were not performed due to the small number of significant univariate comparisons. Furthermore when group differences were identified they were not large despite being statistically significant.

Based on the results of the clinical group comparisons it appears that life events do not, whilst neuroticism, maltreatment and mood clarity may, predict self-injury.

#### *Group Comparisons Between Clinical and University Self-Injury Groups*

To determine whether there were significant differences between the clinical and the university self-injurers, 10 nonparametric group comparisons were completed (see Table 4.13 to Table 4.15). Only four of 10 comparisons revealed significant differences between the two self-injury groups. These differences indicated that the self-injury groups were more similar than dissimilar. Generally, these differences highlighted that university self-injurers, compared to the clinical self-injury group, attended more to their feelings. However clinical self-injurers were higher in feeling repair, total anxiety and depression scores. Post-hoc analyses identified that clinical self-injurers reported more panic symptoms ( $M = 9.23$ ,  $SD = 5.52$ ), than the university self-injury group ( $M = 6.08$ ,  $SD = 3.69$ ), Wilcoxon Rank = 531.50,  $p < .05$ . The clinical self-injurers were also higher in anxiety related to school/university ( $M = 3.65$ ,  $SD = 2.3$ ) than the university self-injurers ( $M = 1.44$ ,  $SD = 1.53$ ), Wilcoxon Rank = 466.0,  $p < .01$ . As shown in Table 4.15, the self-injury groups did not differ significantly in relation to the occurrence of maltreatment. Yet, the clinical self-injury group had a significantly higher occurrence of suicidal ideation than the university self-injury group.

Even though the university self-injury group was approximately two years older than the clinical self-injury group, the group comparison results suggest that clinical and university self-injurers are more similar than dissimilar in relation to life stress,

maltreatment experiences, neuroticism, and clarity of feelings. Nevertheless, there are some differences. Clinical self-injurers had more elevated anxiety and depression symptoms and a higher proportion reported suicidal ideation when compared to a slightly older group of university self-injurers. Comparisons between self-injury groups could not be conducted for positive and negative affect, daily hassles, and coping as they were measured differently in the two studies.

## Diary Results

### *Analytic Plan*

First, 7-day averages and 7-day variances were computed for each variable and participant, and groups were compared using traditional between-subject comparison techniques. More specifically, mood (both positive and negative), daily hassles and associated perceived stressfulness (both alone and in combination), and coping strategies used and associated perceived helpfulness data were aggregated by computing averages and variances across the seven days with SPSS functions. Therefore, each participant had his or her own aggregate scores for all aspects of the diary (i.e., mood, hassles, and coping), and descriptive statistics represent the means and standard deviations of these aggregates.

Following some preliminary group comparisons, primary analyses were conducted using Hierarchical Linear Model (HLM, also called multilevel modelling; Bryk & Raudenbush, 1992) to examine patterns over the seven days and to compare self-injurers to individuals in the clinical comparison group. This approach allowed for the simultaneous analysis of between-subject and within-subject variation. Conventional linear models, such as regression, do not allow for both sources of variation to be analysed simultaneously. As a result, researchers using conventional approaches either fail to distinguish between-subject from within-subject variation, or they eliminate the within-subject level completely (Bolger & Zuckerman, 1995). Elimination of the within-subject level through aggregation across repeated measurements can result in the loss of valuable information (Bolger & Zukerman, 1995). However, as was done in the preliminary analyses here, some analyses depend on aggregation. For example, some researchers have used the variance of measures within each participant as variables in between group comparisons (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000).

Table 4.13  
*Results of Nonparametric Tests Comparing Affect-Related Variables Between University and Clinical Self-Injurers*

Dependent variable	Group	N	M	SD	Median	Wilcoxon Rank	Partial Eta Squared
Attention to Feelings	University Self-injury	24	49.7	7.0	49.0	548.5 *	.10
	Clinical Self-injury	26	44.9	7.6	43.5		
Clarity of Feelings	University Self-injury	24	28.4	5.8	28.5	554.5	.04
	Clinical Self-injury	26	30.5	6.0	30.5		
Feeling Repair	University Self-injury	24	21.4	4.9	23.0	478.5 *	.28
	Clinical Self-injury	26	23.3	2.9	23.0		
Neuroticism	University Self-injury	24	28.8	7.7	31.0	568.0	.04
	Clinical Self-injury	26	31.5	6.3	31.5		
Total Anxiety	University Self-injury	25	24.3	10.7	24.0	526.5 *	.11
	Clinical Self-injury	26	33.5	15.5	32.0		
Depression	University Self-injury	25	63.3	12.6	68.0	410.5 **	.36
	Clinical Self-injury	26	81.65	12.3	80.0		

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

Table 4.14

*Results of Nonparametric Tests Comparing Stress Variables Between University and Clinical Self-Injurers*

Dependent variable	Group	N	M	SD	Median	Wilcoxon Rank	Partial Eta Squared
Total life events count	University Self-injury	25	6.5	2.5	6.0	591.0	.02
	Clinical Self-injury	25	7.2	2.7	7.0		
Total life events, recency	University Self-injury	25	21.3	9.1	19.0	601.0	.02
	Clinical Self-injury	25	24.0	10.3	22.0		
Total life events stressfulness	University Self-injury	25	17.4	8.0	16.0	623.5	.00
	Clinical Self-injury	25	18.3	10.2	16.0		
Total life events – recency X stressfulness	University Self-injury	25	420.4	317.1	336	621.5	.01
	Clinical Self-injury	25	504.2	469.7	330.0		

Table 4.15

*Results of  $\chi^2$  Tests Comparing the Suicidal Ideation and History of Maltreatment of University and Clinical Self-Injurers*

Dependent Variable	University Self-injurers	Clinical Self-injurers	$\chi^2$
	( <i>N</i> = 25) <i>N</i> (% out of 25)	( <i>N</i> = 26) <i>N</i> (% out of 26)	
Suicidal ideation	3 (12%)	19 (73%)	19.4 **
Emotional abuse	18 (72%)	22 (88%)	2.0
Physical abuse	10 (40%)	7 (28%)	.8
Sexual abuse	6 (24%)	9 (36%)	.8
Emotional neglect	14 (56%)	16 (64%)	.3
Physical neglect	8 (32%)	9 (36%)	.1

\*\*  $p < .01$ .

HLM is an extension of the general linear model, and it permits analyses of unbalanced, hierarchically structured data. In addition, with HLM there is a relaxation of assumptions of constant slopes and intercepts and, thus, a variety of models can be tested, such as those that include the assumption of “fixed effects” (i.e., constant intercepts and slopes across persons), “non-randomly varying effects” (i.e., systemic variations in intercepts and/or slopes explained by specific predictor variables), and “randomly varying effects” (i.e., variations in intercepts and/or slopes unexplained by available predictor variables) (Steiger, Gauvin, Jabalpurwala, Seguin, & Stotland, 1999). Multilevel modelling has been used in research on daily stress and coping, particularly when examining the role of individual differences in the occurrence of stressors, stress appraisals, coping, and affectivity (e.g., Bolger & Zuckerman, 1995; David & Suls, 1999; Gunthert et al., 1999, 2002). Multilevel modelling was used to estimate the average 7-day patterns of positive and negative affect, daily hassles, and coping strategies of all participants, and to compare patterns of affect, daily hassles, and coping between self-injurers and non-self-injurers.

Table 4.16 contains descriptive information for each diary measure used in Study 2. Table 4.17 depicts Pearson correlations between all diary variables in Study 2, while Table 4.18 depicts Pearson correlations between all variables in Study 2.

Table 4.16

*Descriptive Statistics of Diary Variables (N = 47)*

Measured variables	<i>M</i>	<i>SD</i>	Median
Average across the 7-days			
Positive affect	17.0	6.2	14.7
Negative affect	21.8	9.9	18.1
Daily hassles, frequency	3.8	3.4	2.9
Daily hassles, stressfulness	9.3	12.0	5.1
Daily hassles, frequency X stress	145.0	317.9	37.4
Active coping, frequency	1.6	.6	1.3
Active coping, helpfulness	2.2	.6	2.1
Distraction coping, frequency	1.6	.4	1.5
Distraction coping, helpfulness	2.5	.7	2.6
Avoidance coping, frequency	1.7	.7	1.4
Avoidance coping, helpfulness	1.4	.5	1.3
Seeking social support strategies, frequency	1.4	.5	1.3
Seeking social support strategies, helpfulness	2.5	.7	2.2
Variance across the 7-days			
Positive affect	30.3	33.2	18.3
Negative affect	42.5	46.2	19.2
Daily hassles, frequency	8.5	10.3	6.6
Daily hassles, stress	70.4	111.1	31.3
Daily hassles frequency X stressfulness	28062.3	70064.7	1886.3
Active coping, frequency	.1	.1	.1
Active coping, helpfulness	.3	.4	.2
Distraction coping, frequency	.1	.2	.0
Distraction coping, helpfulness	.3	.3	.3
Avoidance coping, frequency	.3	.3	.2
Avoidance coping, helpfulness	.4	.4	.3
Seeking social support strategies, frequency	.2	.4	.1
Seeking social support strategies, helpfulness	.3	.4	.2

Table 4.17  
*Correlations Between All Continuous Variables Measured In The Diary Component of Study 2*

Variables	1	2	3	4	5	6	7	8	9	10	11	12
Average across the 7-days												
1. Positive affect	---											
2. Negative affect	.27	---										
3. Daily hassles, freq	.31 *	.73 **	---									
4. Daily hassles, stressfulness	.35 *	.92 **	.89 **	---								
5. Active coping, frequency	.62 **	.50 **	.51 **	.60 **	---							
6. Active coping, helpfulness	.48 **	.32 *	.16	.34 *	.47 **	---						
7. Distraction coping, frequency	.60 **	.40 **	.47 **	.58 **	.72 **	.52 **	---					
8. Distraction coping, helpfulness	.47 **	.33 *	.23	.33 *	.48 **	.69 **	.41 **	---				
9. Avoidance coping, frequency	.48 **	.74 **	.54 **	.70 **	.84 **	.39 **	.50 **	.48 **	---			
10. Avoidance coping, helpfulness	.42 **	.14	.04	.19	.41 **	.67 **	.38 **	.61 **	.29	---		
11. Seeking social support, frequency	.56 **	.57 **	.47 **	.63 **	.85 **	.50 **	.68 **	.43 **	.78 **	.33 *	---	
12. Seeking social support, helpfulness	.43 **	.27	.08	.26	.50 **	.80 **	.50 **	.68 **	.45 **	.58 **	.49 **	---
Variance across the 7-days												
13. Positive affect	.48 *	.38 **	.35 *	.39 **	.48 **	.11	.35 *	.27	.45 **	.05	.46 **	.07
14. Negative affect	.18	.77 **	.61 **	.70 **	.50 **	.11	.29 *	.30 *	.66 **	.08	.48 **	.04
15. Daily hassles, frequency	.03	.17	.49 *	.29 *	.04	.05	.12	.09	.05	-.18	.09	-.11
16. Daily hassles, stressfulness	.23	.77 **	.66 **	.76 **	.47 **	.12	.28	.20	.63 **	-.02	.57 **	.05
17. Active coping, frequency	.24	-.09	-.16	-.13	.47 **	.25	.25	.27	.33 *	.15	.27	.37 *
18. Active coping, helpfulness	.00	.42 **	.15	.21	-.05	.33 *	-.05	.27	.24	.08	-.09	.36 *
19. Distraction coping, frequency	.31 *	-.00	.01	.05	.46 **	.28	.46 **	.29	.30 *	.19	.30 *	.42 **



Variables	1	2	3	4	5	6	7	8	9	10	11	12
20. Distraction coping, helpfulness	-.00	.00	.03	.00	.00	-.03	.03	.06	.06	-.19	-.10	-.14
21. Avoidance coping, frequency	.26	.36 *	.05	.16	.27	.21	.06	.27	.50 **	.15	.14	.26
22. Avoidance coping, helpfulness	-.03	-.07	-.19	-.14	.06	.43 **	-.02	.18	-.01	.16	.06	.45 **
23. Seeking social support, frequency	.44 **	.17	.01	.10	.63 **	.32 *	.29 *	.34 *	.61 **	.21	.58 **	-.07
24. Seeking social support, helpfulness	-.03	.10	.01	.01	.01	-.03	-.12	.09	.08	-.17	-.01	.02
Variables	13	14	15	16	17	18	19	20	21	22	23	24
Variance across the 7-days												
13. Positive affect	---											
14. Negative affect	.42 **	---										
15. Daily hassles, frequency	.12	.17	---									
16. Daily hassles, stressfulness	.53 **	.78 **	.40 **	---								
17. Active coping, frequency	.24	-.02	-.14	-.05	---							
18. Active coping, helpfulness	.07	.21	.04	.14	.08	---						
19. Distraction coping, frequency	.31 *	-.01	-.06	-.01	.50 **	.04	---					
20. Distraction coping, helpfulness	.22	.22	.10	.09	.15	.28	.08	---				
21. Avoidance coping, frequency	.28	.36 *	-.15	.08	.33 *	.46 *	.23	.24	---			
22. Avoidance coping, helpfulness	-.23	-.14	-.26	-.15	.34 *	.38 *	.03	.16	.16	---		
23. Seeking social support, frequency	.21	.22	-.02	.27	.57 **	.06	.35	-.01	.40 **	.32 *	---	
24. Seeking social support, helpfulness	.08	.10	.03	-.01	.10	.44 **	-.06	.39 *	.07	.07	.38 *	---

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

Table 4.18

*Correlations Between All Continuous Variables Measured in Study 2*

(Note. Variables numbered 1 to 24 are those reported in Table 4.17)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
25. Attention to feelings	.11	.37 **	.22	.27	.12	-.00	.03	-.08	.18	-.09	.18	-.16
26. Clarity of feelings	.28	-.08	-.02	-.03	.22	.40 **	.21	.03	.06	.17	.22	.14
27. Feeling repair	.33 *	-.20	-.28	-.22	.20	.29 *	.15	.22	.04	.26	.13	.17
28. Neuroticism	-.10	.40 **	.26	.34 *	.03	-.01	.12	.02	.18	.08	.13	.24
29. Anxiety	-.18	.45 **	.27	.40 **	.23	-.02	.19	.08	.29	.12	.35 *	.13
30. Depression	-.19	.43 **	.38 **	.40 **	.02	.02	.11	.13	.14	-.01	.09	.21
31. Life events, recency	.15	.34 *	.27	.34 *	.17	.13	.22	.00	.22	.19	.25	.17
32. Life events, stressfulness	.06	.45 **	.25	.40 **	.23	.24	.20	.15	.28	.27	.35 *	.25
33. Suicidal ideation	.02	.19	.19	.13	.14	-.04	-.06	.08	.19	-.16	.03	-.01
34. Emotional abuse	-.25	.16	.25	.23	-.02	.05	.07	.03	.06	-.06	-.01	-.03
35. Physical abuse	-.19	.24	.24	.27	-.13	.03	.05	.03	-.01	-.08	-.14	-.16
36. Sexual abuse	.03	.00	-.03	-.01	-.02	-.02	.05	.09	.03	.19	-.03	.04
37. Emotional neglect	-.30 *	.20	.26	.25	-.10	-.03	.06	.01	-.03	.04	-.07	-.11
38. Physical neglect	-.10	.35 *	.44 **	.41 **	.04	-.17	.07	-.11	.16	-.10	.12	-.25

Variables	13	14	15	16	17	18	19	20	21	22	23	24
25. Attention to feelings	.33 *	.34 *	.00	.31 *	-.16	.15	-.16	.24	.21	.01	.03	.14
26. Clarity of feelings	.03	-.19	.10	.03	.28	-.10	.22	-.03	-.13	.31	.34 *	-.24
27. Feeling repair	.19	-.09	-.14	-.12	.38 **	-.16	.11	.09	.15	.22	.32 *	-.26
28. Neuroticism	.08	.26	.06	.23	-.20	.32 *	-.04	-.13	.19	.00	-.17	.11
29. Anxiety	.20	.43 **	-.03	.42 **	-.10	.07	.06	-.12	.01	-.05	-.08	.04
30. Depression	.10	.35 *	.09	.21	-.13	.37 *	-.00	-.01	.17	-.12	-.30 *	.22
31. Life events, recency	.16	.23	-.10	.18	.04	.27	-.07	-.18	.19	.03	.03	.08
32. Life events, stressfulness	.24	.33 *	-.12	.25	.04	.24	-.00	-.03	.27	.09	.10	-.01
33. Suicidal ideation	.16	.34 *	.07	.27	.18	.36 *	.06	.17	.16	-.05	.13	.37
34. Emotional abuse	-.21	.17	.12	.03	-.17	.24	-.08	.06	-.06	-.06	-.26	.37 *
35. Physical abuse	-.08	.22	.30 *	.19	-.14	.07	-.24	.01	-.08	-.28	-.24	-.00
36. Sexual abuse	-.04	.23	-.06	-.01	-.05	.25	-.02	.15	.19	.07	-.00	.20
37. Emotional neglect	-.18	.28	.14	.12	-.18	.04	-.10	.06	.04	-.15	-.17	-.21
38. Physical neglect	-.04	.36 *	.09	.28	-.16	-.09	-.24	-.02	-.10	-.24	-.14	-.18

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

### *Group Comparisons of 7-day Averages and 7-day Variances*

Between group comparisons of 7-day average and variance scores were completed. All aspects of daily hassles were highly correlated with each other,  $r$ s ranged from .77 to .97, all  $p < .01$ . Therefore, the daily hassles total score was used in all analyses, rather than the subscales of daily hassles.

Only one of the 26 planned group comparisons of affect, daily hassles and coping strategies differed between self-injurers and non-self-injuring adolescents attending a clinical service (see Table 4.19). No significant group differences were found for the average and the variance of mood over the 7 days. Furthermore, no group differences were identified for any aspects of daily hassles, namely, the total score (number of hassles X perceived stressfulness), number of hassles, perceived stressfulness, and the average and the variance across the 7 days.

Only one significant difference was identified for the four higher-order subscales of coping, and post-hoc analyses identified significant group differences on the lower-order subscales (see Table 4.19). Self-injurers had significantly greater fluctuations across the seven days in perceived helpfulness of seeking social support than the comparison group; with an eta square = .18. Closer examination of the coping aspect of seeking social support highlighted that self-injurers had significantly higher fluctuations ( $M = .77$ ,  $SD = .66$ ) across the seven days in perceived helpfulness of problem-focused support seeking, compared to the comparison group ( $M = .20$ ,  $SD = .29$ ), Wilcoxon Rank = 131.0,  $p < .01$ , eta square = .23.

Additional unplanned post-hoc comparisons were completed with all lower order subscales of coping. This included comparing 7-day average and variance scores for the 11 lower order coping measures included in the CCSC. Two significant group differences were found. First, self-injurers were significantly lower ( $M = 2.05$ ,  $SD = .59$ ) than the clinical comparison group ( $M = 2.46$ ,  $SD = .61$ ) on the 7-day average of perceived helpfulness of positive cognitive restructuring, Wilcoxon Rank = 377.0,  $p < .05$ , eta square = .11. Second, self-injurers were lower ( $M = 2.17$ ,  $SD = .70$ ) than the comparison group ( $M = 2.73$ ,  $SD = .88$ ) on the perceived helpfulness of expressing feelings averaged across the 7 days, Wilcoxon Rank = 189.0,  $p < .05$ , eta square = .12.

Table 4.19

*Results of Nonparametric Tests Comparing Self-Injury and the Comparison Group Participants on All Measured Variables (n ranged from 18 to 25 self-injurers and n ranged from 14 to 22 for the comparison participants)*

Dependent variable	Group	M	SD	Median	Wilcoxon test	Partial Eta Squared
Average across the 7-days						
Positive affect	Self-injury Comparison	15.7 18.4	5.2 7.1	13.6 17.9	543.0	.05
Negative affect	Self-injury Comparison	22.2 21.3	9.3 10.8	19.1 17.6	218.5	.00
Daily hassles, total occurred	Self-injury Comparison	3.7 3.9	2.9 4.0	3.1 2.4	515.0	.00
Daily hassles, perceived stressfulness	Self-injury Comparison	8.9 9.7	9.1 9.1	5.3 5.3	519.0	.00
Daily hassles occurred X stressfulness	Self-injury Comparison	114.7 179.2	167.6 432.4	45.6 29.6	488.0	.01
Active coping, frequency	Self-injury Comparison	1.5 1.6	.5 .7	1.3 1.3	580.5	.01
Active coping, helpfulness	Self-injury Comparison	2.2 2.2	.5 .6	2.0 2.1	578.0	.00
Distraction coping, frequency	Self-injury Comparison	1.5 1.6	.3 .5	1.4 1.5	583.5	.01
Distraction coping, helpfulness	Self-injury Comparison	2.5 2.5	.7 .6	2.6 2.5	523.0	.00
Avoidance coping, frequency	Self-injury Comparison	1.7 1.7	.6 .7	1.5 1.3	519.5	.00
Avoidance coping, helpfulness	Self-injury Comparison	2.1 2.2	.7 .7	2.0 2.1	554.5	.01
Seeking Social Support, frequency	Self-injury Comparison	1.5 1.4	.4 .6	1.3 1.2	469.0	.00
Seeking Social Support, helpfulness	Self-injury Comparison	2.5 2.5	.7 .7	2.5 2.0	380.5	.00

Dependent variable	Group	<i>M</i>	<i>SD</i>	Median	Wilcoxon test	Partial Eta Squared
Variance across the 7-days						
Positive affect	Self-injury Comparison	22.0 39.7	23.4 40.2	18.9 17.5	560.5	.07
Negative affect	Self-injury Comparison	44.3 40.4	42.9 50.7	26.3 12.8	492.0	.00
Daily hassles, total occurred	Self-injury Comparison	8.0 9.1	6.3 13.6	6.7 4.9	495.0	.00
Daily hassles, perceived stressfulness	Self-injury Comparison	60.2 81.8	67.8 146.7	39.9 21.8	493.0	.01
Daily hassles occurred X stressfulness	Self-injury Comparison	18867.3 38511.1	37391.4 94553.2	3312.3 1218.1	484.0	.02
Active coping, frequency	Self-injury Comparison	.1 .1	.1 .1	.1 .1	563.0	.01
Active coping, helpfulness	Self-injury Comparison	.4 .3	.4 .3	.3 .2	437.5	.04
Distraction coping, frequency	Self-injury Comparison	.1 .1	.1 .2	.0 .1	564.5	.01
Distraction coping, helpfulness	Self-injury Comparison	.3 .3	.2 .3	.3 .3	518.0	.00
Avoidance coping, frequency	Self-injury Comparison	.2 .2	.2 .3	.1 .1	512.5	.00
Avoidance coping, helpfulness	Self-injury Comparison	.4 .4	.3 .5	.3 .3	365.0	.01
Seeking Social Support, frequency	Self-injury Comparison	.2 .3	.3 .5	.1 .1	513.0	.01
Seeking Social Support, helpfulness	Self-injury Comparison	.4 .1	.4 .2	.3 .0	201.0**	.18

\*\*  $p < .01$

*Analyses with female participants only.* Because the number of male participants was small (i.e., 3 male self-injurers, and 10 male non-self-injurers), analyses were repeated including female participants only. As was found above, there were no group differences in 7-day average or variance in positive and negative affect. Furthermore, daily hassles average and variance scores did not differ between groups.

As was found with the total sample of females and males, compared to the comparison group, female self-injurers were significantly lower on the average across the 7 days of the perceived helpfulness of expressing feelings, and had greater fluctuations across the seven days in perceived helpfulness of seeking social support particularly in the aspects of problem-focused support seeking. In addition, a trend was also identified for the aspect of fluctuations in the perceived helpfulness of seeking understanding to cope. Female self-injurers had more fluctuations ( $M = .51$ ,  $SD = .71$ ) than the comparison group ( $M = .33$ ,  $SD = .60$ ) in the perceived helpfulness of seeking understanding to cope, Wilcoxon Rank = 119.0,  $p = .055$ , eta square = .02. Overall the exclusion of male participants did not dramatically change the results, and did not justify further analyses containing only female participants.

*Analyses without participants who had a history of tablet overdoses.* Analyses were repeated after excluding the two participants who had taken tablet overdoses. Results of comparisons were similar to those with the total sample, which indicates that adolescents who self-injure by overdosing are similar to adolescents who self-injure by other means (i.e., cutting, scratching, burning).

#### *Seven-Day Patterns of Affect, Stress and Coping in Self-Injurers and Comparison Adolescents*

Multilevel modelling was used to evaluate the day-to-day stability and change in mood, daily hassles, and coping as a function of self-injury. The data consisted of two levels: Level 1, the within-subject level which included the repeated daily measures, and Level 2, the between-subjects level which consisted of the person characteristics, in this instance self-injury or not. The data were analysed using the hierarchical linear modelling (HLM) statistical program (Bryk & Raudenbush, 1992). At the first level, a unique regression equation is estimated for each participant in the study, such that each individual has his or her own characteristic slope and intercept. The slopes and intercepts are then predicted by Level 2, person level, variables. In this study, the person variable was self-injury classification (yes/no).

### *Unconditional Models*

Prior to comparing self-injurers to the other non self-injuring participants, average patterns of affect, stress and coping were estimated to assess whether there was any change in these variables over the 7-day diary period. In these models, day (coded from 0 to 6) was regressed on each measure of affect, stress or coping. These models are often called unconditional models. Hierarchical unconditional models with repeated data within persons estimate patterns over time in a single variable. For example, such a model will answer the question, “is there linear change in negative affect over the seven days?”. The current analyses entailed estimating seven unconditional hierarchical linear regression models to provide estimates of the 7-day stability and change in positive and negative affect, daily hassles, and four subscales of coping. As an example, the unconditional model of negative affect was:

$$NA_{ti} = \beta_{0i} + \beta_{1i} (\text{day}_{ti}) + r_{ti}$$

where NA was negative affect for each day for each person,  $\beta_{0i}$  was an estimate of the average negative affect on day 1 (the intercept) for each person,  $\beta_{1i}$  was an estimate of the linear pattern of change (the slope coefficient) across the seven days for each person,  $\text{day}_{ti}$  was the day of measurement (coded 0 to 6 for the 7 days in this study) for each person, and  $r_{ti}$  was the random error component.

In the first three unconditional models, on average, the initial level of negative affect, positive affect, and daily hassles differed significantly from 0, as was expected: negative affect,  $\gamma_{00} = 23.74, p < .001$ ; positive affect,  $\gamma_{00} = 20.18, p < .001$ ; daily hassles,  $\gamma_{00} = 177.71, p < .001$ . In addition, on average, there was significant decrease in negative affect, positive affect, and daily hassles across the 7 days: negative affect,  $\gamma_{10} = -.48, p < .05$ ; positive affect,  $\gamma_{10} = -.80, p < .001$ ; daily hassles,  $\gamma_{10} = -8.76, p < .05$ .

Similar models were conducted for the four aspects of coping. On average and as would be expected, the average level of active coping, distraction, avoidance, and seeking support on day 1 differed significantly from 0 (active coping,  $\gamma_{00} = 1.85, p < .001$ ; distraction,  $\gamma_{00} = 1.75, p < .001$ ; avoidance,  $\gamma_{00} = 1.93, p < .001$ ; support seeking,  $\gamma_{00} = 1.72, p < .001$ ). Much more importantly, there was significant declines in the four aspects of coping across the 7 days: active coping,  $\gamma_{10} = -.06, p < .001$ ; distraction,  $\gamma_{10} = -.04, p < .01$ ; avoidance,  $\gamma_{10} = -.06, p < .001$ ; support seeking,  $\gamma_{10} = -.07, p < .001$ .



*Comparisons of Self-Injurers and the Clinical Comparison Group (Level 2 Modelling)*

The next analyses were completed to compare 7-day patterns of affect, stress and coping between self-injurers and non-self-injuring adolescents who also seeking clinical services. In each of these models, day was again regressed on each measure of affect, stress or coping, but a level 2 variable, indicating group membership, also was included in each model. The Level 2 equations estimated individual intercepts and slopes in affect, stress and coping as a function of self-injury group. These analyses were used to determine whether or not self-injury accounted for some of the variability in patterns of mood, daily hassles, or coping behaviours over 7 days of the diary study. The Level 2 (between-subjects) model estimated Level 1 intercepts and slopes using the following equations:

$$B_{0j} = \gamma_{00} + \gamma_{01}SI_j + u_j$$

$$B_{1j} = \gamma_{10} + \gamma_{11}SI_j + u_j$$

There were no significant differences between self-injurers and non-self-injurers in intercepts and linear changes across the 7 days in models of affect, hassles and coping. Also, even after adjusting for daily hassles, there remained no significant differences between self-injury and non-self-injury groups when the initial level of both negative affect and positive affect and patterns of linear change across the seven days were compared.

A test of self-injury as a moderator of associations between 7-day patterns of negative affect and 7-day patterns of daily hassles (i.e. a different association for self-injurers compared to non-self-injurers) did not quite reach statistical significant. Yet, in this model, the association between negative affect and daily hassles for the self-injurers was somewhat stronger than among non-self-injurers,  $\gamma_{21} = .01, p = .053$ . The association between 7-day patterns of positive affect and 7-day patterns of daily hassles did not significantly differ among self-injurers as compared to among non-self-injurers.

Seven-day patterns of the four scales of coping frequency were compared between self-injurers and non-self-injurers. No group differences in patterns of active coping, distraction coping, avoidance coping or seeking social support were found.

Support seeking strategies was the only aspect of coping that had a significant association with daily hassles in HLM, and thus was the only aspect of coping further examined. There was no significant difference in the association between 7-day patterns of seeking support and 7-day patterns of daily hassles among self-injurers as compared to the association among non-self-injurers. Furthermore, there was an association

between the slopes of support seeking strategies and positive affect ( $\gamma_{20} = 3.52, p < .05$ ), yet there was no difference in the association among self-injurers as compared to non-self-injurers ( $\gamma_{21} = -1.11, p > .05$ ). Similarly, there was an association between the slopes of support seeking strategies and negative affect ( $\gamma_{20} = 4.27, p < .05$ ), but there was no group difference in the association ( $\gamma_{21} = -3.61, p > .05$ ).

#### *Day-by-Day Reporting of Self-Injury Ideation or Self-Injury*

Table 4.20 depicts the day-by-day occurrence of self-injury or self-injury ideation for each participant. There were 33 incidents of self-injury ideation among the self-injurers, and nine incidents of self-injury ideation among non-self-injurers. Five self-injurers reported a total of seven incidents of self-injury across the seven days (range 1 to 3). A total of 30 (of 47) participants did not contemplate self-injury on any of the seven days, although one of these participants reported one incident of self-injury (with no self-injury ideation).

Table 4.20 highlights that there were five participants who reported at least one incident of self-injury on the diary form. The first incident of self-injury for each participant was identified for further consideration. Statistical analyses could not be conducted because of the sample size of five. Nonetheless descriptives of these are of interest.

The five participants who self-injured during the study period were all female, but this group was similar in age to other study participants. Very little differentiated the five participants from the overall sample, however all five reported some level of emotional abuse, and moderate to severe emotional neglect. Elevations in psychopathology varied, but four of the five were elevated in generalised anxiety and four were also elevated in panic symptoms. These five participants did not appear to differ to the overall sample in the number or aspects of psychopathology that were elevated, however. Interestingly, four of the five participants were the only participants in the sample who indicated having experienced *severe* emotional neglect.

Table 4.20

*Day-by-Day Incidents of Self-Injury or Self-Injury Ideation for Each Participant*

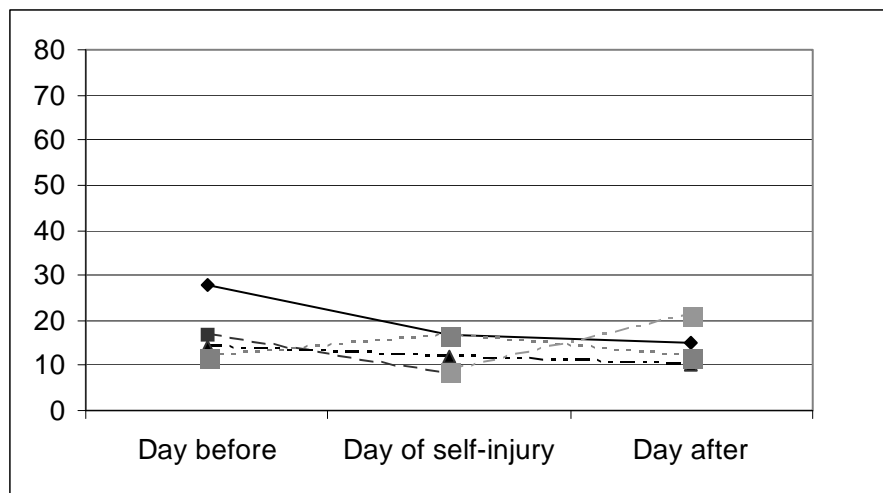
Participant number	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
3 *							
10 *							
13 *				SI			
16 *	SI	<b>SH</b> / SI					
21 *							
23 *							
25 *				SI	SI		<b>SH</b> / SI
26 *	SI						
27 *							
28 *							
29 *			SI				
31 *							
36 *			SI		SI		
40 *							
41 *							
42 *			<b>SH</b>				
43 *							
44 *	SI			SI	SI		SI
45 *	SI	SI				SI	SI
46 *				SI	<b>SH</b> / SI		
47 *	SI	SI		<b>SH</b> / SI	<b>SH</b> / SI	SI	<b>SH</b> / SI
48 *	SI						
49 *							
52 *				SI	SI	SI	
53 *			SI	SI	SI		
2							
5							
9							
11							
12							
14		SI	SI	SI	SI		
18							
19							
20							
22							
24							
30							
32							
33		SI					
34							
35							
37							SI
39							
50							
51							
54							
55		SI	SI			SI	

**SH** = self-injury occurred

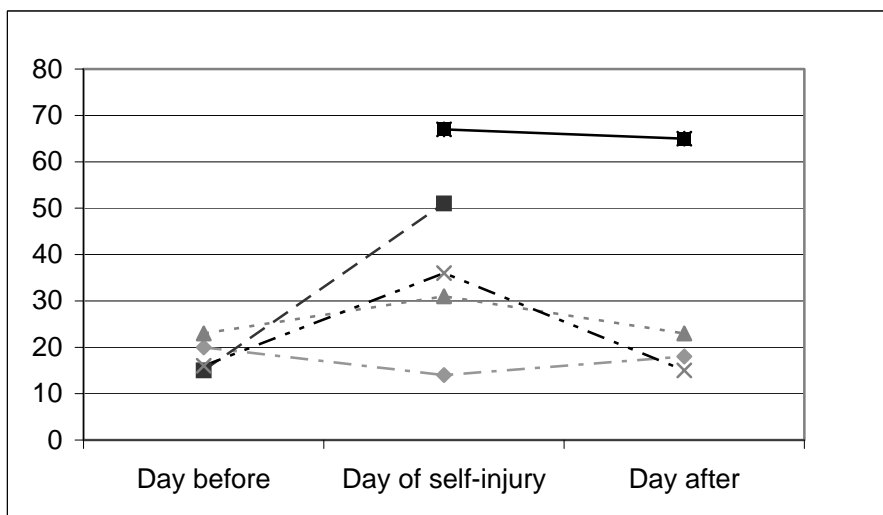
SI – self-injury ideation occurred

\* = self-injurer

*Positive and negative affect.* Although no statistical comparisons were conducted, the five self-injuring participants' reported somewhat higher positive affect on the day before an incident of self-injury ( $M = 17.75$ ,  $SD = 7.14$ ) than the day of the self-injury ( $M = 12.60$ ,  $SD = 4.28$ ), and the day after the self-injury incident ( $M = 14.50$ ,  $SD = 4.80$ ; see Figure 4.1). Self-injuring participants reported higher negative affect on the day of the self-injury ( $M = 39.80$ ,  $SD = 20.14$ ) than the day before the incident of self-injury ( $M = 18.50$ ,  $SD = 3.70$ ), and the day after the self-injury incident ( $M = 30.25$ ,  $SD = 23.40$ ; see Figure 4.2). When only two data points are shown on Figure 4.1 and for all similar figures, self-injury occurred on either the first or the last day of the diary.



*Figure 4.1* Self-injuring participants' positive affect across the three days of first act of self-injury



*Figure 4.2* Self-injuring participants' negative affect across the three days of first act of self-injury.

*Daily hassles.* Self-injuring participants reporting of the number of daily hassles was highest on the day of the self-injury incident ( $M = 13$ ,  $SD = 6.59$ ), and lowest on the day after the self-injury incident ( $M = 8$ ,  $SD = 6.05$ ; see Figure 4.3). Daily hassles on the day before the self-injury fell in-between ( $M = 10.25$ ,  $SD = 2.36$ ). Self-injuring participants' perceived stressfulness of the daily hassles was lowest on the day before the self-injury ( $M = 14$ ,  $SD = 4.32$ ), and highest on the day of self-injury ( $M = 36$ ,  $SD = 20.95$ ; see Figure 4.4). Perceived stressfulness of the reported daily hassles on the day after the self-injury fell in-between ( $M = 25.25$ ,  $SD = 33.44$ ).

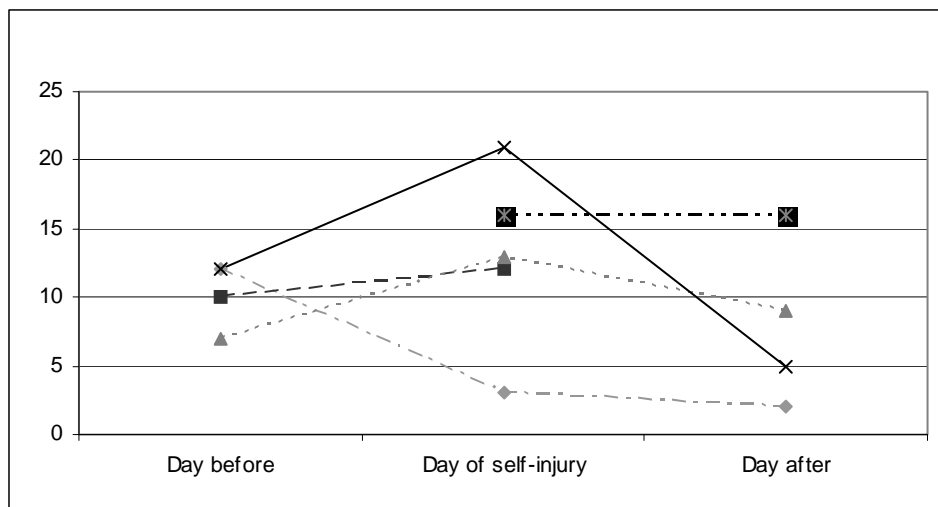


Figure 4.3 Self-injuring participants' reported number of daily hassles across the three days of first act of self-injury.

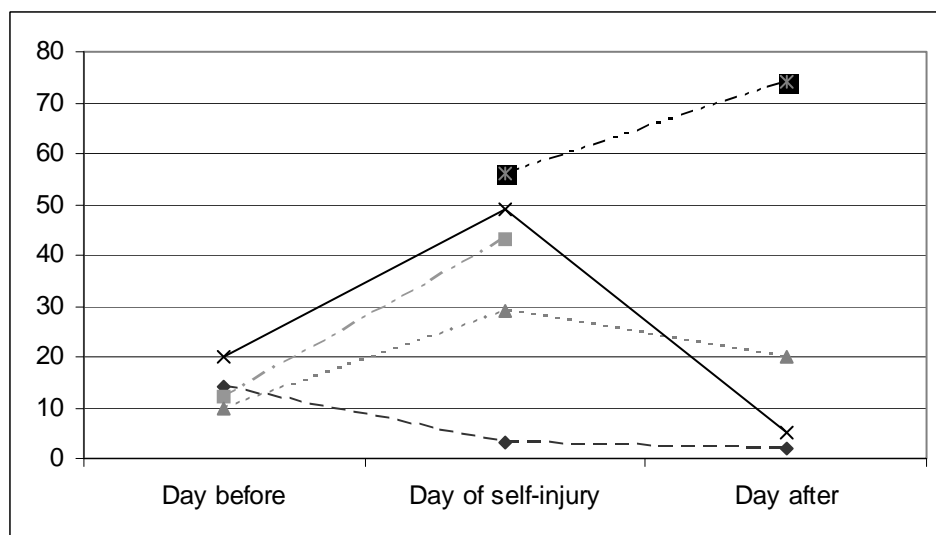


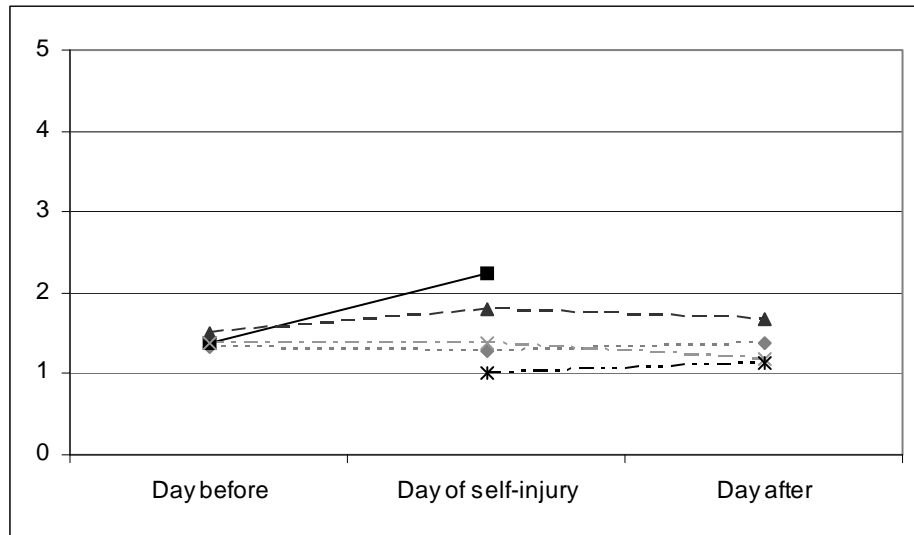
Figure 4.4 Self-injuring participants' perceived stress of daily hassles across the three days of first act of self-injury.

*Coping strategies used and perceived helpfulness.* There were no large differences across the days for the use of active coping (see Figure 4.5). However, self-injurers reported that the active coping used was less helpful on the *day of* self-injury ( $M = 1.23, SD = .71$ ), compared to the day before ( $M = 1.89, SD = .49$ ) and the day after ( $M = 2.39, SD = 1.14$ ; see Figure 4.6).

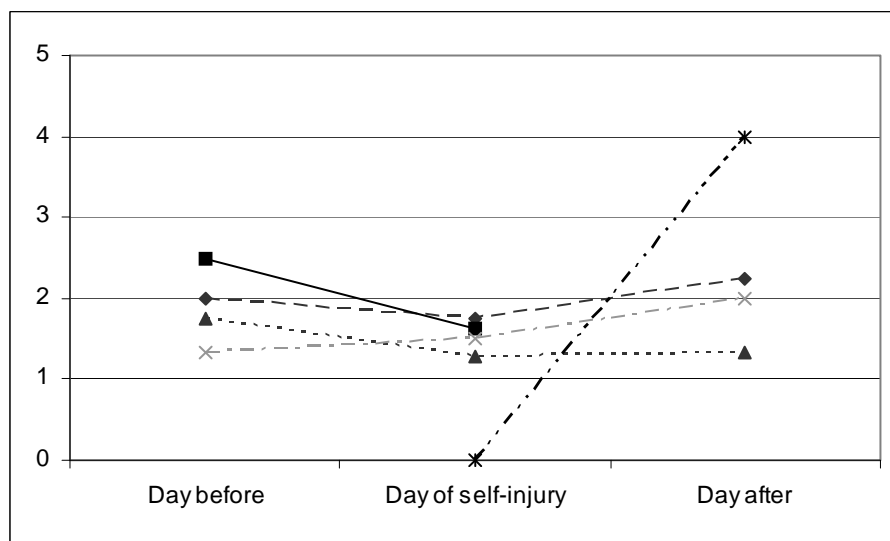
There were no large differences across the days for the use of support seeking strategies to cope (see Figure 4.7). Interestingly, self-injurers found support seeking strategies as most helpful the day after the self-injury ( $M = 1.25, SD = 1.5$ ), and least helpful on the day before the self-injury ( $M = .75, SD = .96$ ) (day of self-injury,  $M = 1.10, SD = 1.14$ ; see Figure 4.8).

Self-injuring participants reported similar levels of distraction coping strategies on the day before ( $M = 1.54, SD = .51$ ) and the day of the self-injury ( $M = 1.52, SD = .40$ ). Slightly less use of distraction coping strategies was reported on the day after the self-injury ( $M = 1.39, SD = .21$ ; see Figure 4.9). Self-injurers found these distraction strategies similarly helpful on the day before the self-injury ( $M = 2.16, SD = .87$ ), and the day after the self-injury ( $M = 1.94, SD = .83$ ) (day of self-injury,  $M = 2.05, SD = 1.28$ ; see Figure 4.10).

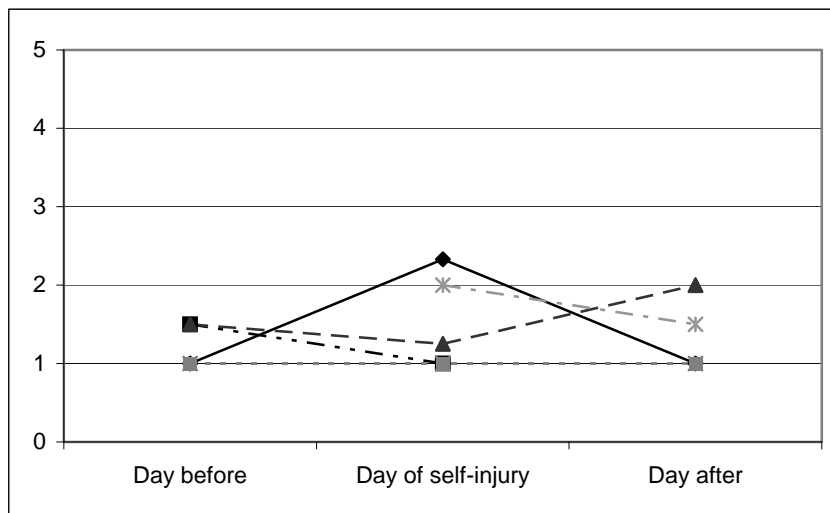
Self-injuring participants reported using the most avoidant coping strategies on the day of self-injury ( $M = 2.33, SD = .80$ ), and similar and lower levels on the day before ( $M = 1.62, SD = .16$ ) and day after the self-injury ( $M = 1.84, SD = .80$ ; see Figure 4.11). A different pattern emerged for the perceived helpfulness of these avoidance coping strategies. No large differences were identified across the days for perceived helpfulness of avoidance coping strategies used (see Figure 4.12).



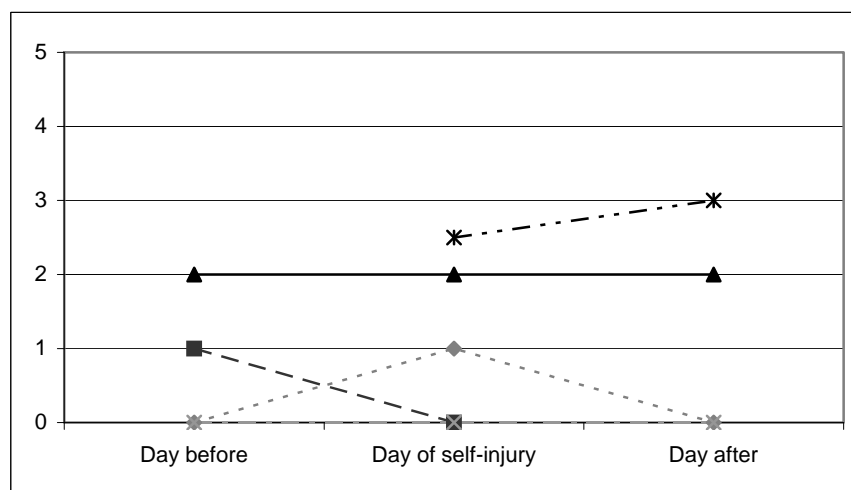
*Figure 4.5* Frequency of active coping strategies used by self-injuring participants across the three days of first act of self-injury.



*Figure 4.6* Self-injuring participants' reported perceived helpfulness of active coping strategies used across the three days of first act of self-injury.

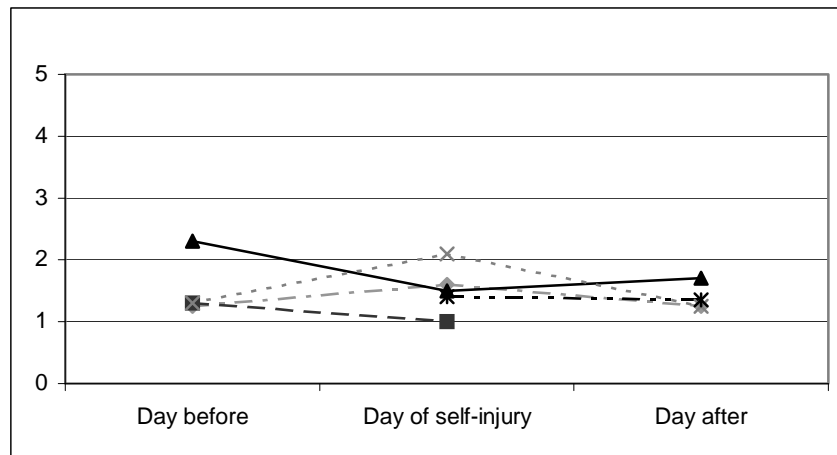


*Figure 4.7* Frequency of support seeking strategies for coping used by self-injuring participants across the three days of first act of self-injury.

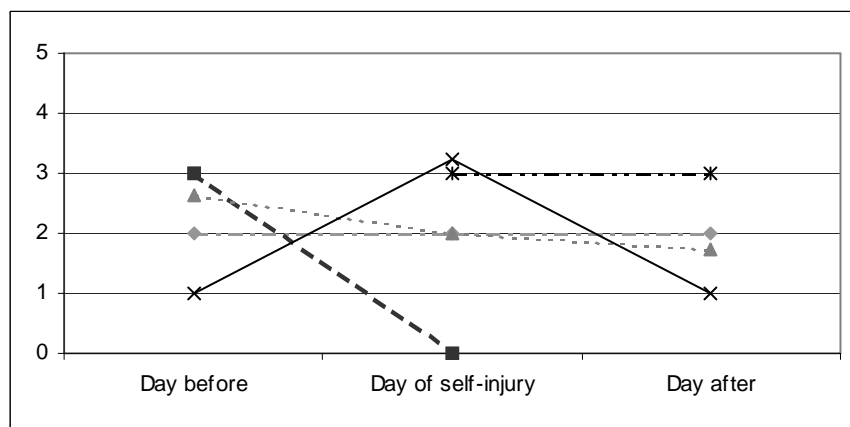


*Figure 4.8* Self-injuring participants' perceived helpfulness of support seeking strategies for coping across the three days of first act of self-injury.





*Figure 4.9* Frequency of distraction coping strategies used by self-injuring participants across the three days of first act of self-injury.



*Figure 4.10* Self-injuring participants reported perceived helpfulness of distraction coping strategies used across the three days of first act of self-injury.

In terms of coping, despite active coping being utilised similarly across the three days, self-injurers perceived active coping as most helpful on the day after self-injury, and least helpful on the day of self-injury. Also, although support seeking strategies were used similarly across the three days, self-injurers perceived these strategies as most helpful when used the day after self-injury, and least helpful on the day before self-injury. There were no large differences across the three days for the use of distraction coping and its perceived helpfulness. Avoidant coping was used most on the day of self-injury, and least on the day before self-injury. However avoidance coping was perceived as most helpful on the day before self-injury, and least helpful on the day after self-injury.



*Figure 4.11* Frequency of avoidant coping strategies used by self-injury participants across the three days of first act of self-injury.



*Figure 4.12* Self-injuring participants' perceived helpfulness of avoidant coping strategies used across the three days of first act of self-injury.

*Summary.* Positive affect was at it's highest the day before self-injury and at it's lowest the day of self-injury. Negative affect was at it's highest the day of self-injury, and at it's lowest on the day before self-injury. The number of daily hassles was highest on the day of self-injury and lowest on the day after self-injury. Furthermore, perceived stressfulness of daily hassles was highest on the day of self-injury and lowest on the day before self-injury.

#### *Day Before, Day Of, And Day After Self-Injury Ideation*

The first incident of self-injury ideation for each participant was identified for further consideration. Four participants were not included, as they also had self-injury

acts, and it is possible that the patterns across the three days may be better explained by self-injury rather than self-injury ideation. Friedman tests, which are the non-parametric statistical analysis comparable to the repeated measures ANOVA, were conducted. Post-hoc analyses in the form of Wilcoxon Signed Ranks Test was utilised to identify the specific variables that were significantly different.

The results of Friedman tests indicated that significant differences did exist in positive affect when the day before, day of, and day after self-injury ideation was reported,  $\chi^2(2, N = 8) = 7.55, p < .05$ . Further examination with the Wilcoxon Signed Ranks tests highlighted that the significant difference was between positive affect for the day after ( $M = 15.42, SD = 6.37$ ) and day before self-injury ideation ( $M = 21.89, SD = 9.05$ ),  $T = -2.11, p < .05$ , with the day before having significantly higher positive affect than the day after self-injury ideation. There was no significant difference for negative affect when the three days surrounding the first incident of self-injury ideation were compared,  $\chi^2(2, N = 8) = 3.20, p = .20$ .

The results of the Friedman test indicated that there was no significant difference in the number of daily hassles across the three days surrounding and including self-injury ideation,  $\chi^2(2, N = 8) = 4.32, p = .12$ . However, there was a significant difference in the perceived stress of daily hassles across the three days,  $\chi^2(2, N = 8) = 7.75, p < .05$ . Perceived stress of daily hassles was significantly higher on the day of self-injury ideation ( $M = 17.08, SD = 10.79$ ) compared to the day before ( $M = 12.67, SD = 11.91$ ),  $T = -2.68, p < .01$ .

No significant differences were identified for both interpersonal and intrapersonal daily hassles, for either the number of hassles or perceived stressfulness. The results of the Friedman test indicated that significant differences did exist in the perceived stressfulness of task hassles across the three days,  $\chi^2(2, N = 8) = 6.28, p < .05$ . However, posthoc analyses did not reveal any pairs of days that significantly differed, suggesting that this finding may have been more of a trend.

Only one significant difference was found when coping strategies used and the associated perceived helpfulness were compared across the three days surrounding and including self-injury ideation. In relation to the perceived helpfulness of distraction coping strategies used, the Friedman test indicated that significant differences did exist across the three days,  $\chi^2(2, N = 8) = 6.74, p < .05$ . Utilising the Wilcoxon Signed Ranks test, it was identified that perceived helpfulness of distraction coping strategies used was significantly lower on the day of self-injury ideation ( $M = 2.51, SD = .74$ ) compared to the day before self-injury ideation ( $M = 2.94, SD = .76$ ),  $T = -2.38, p < .05$ .

## Discussion

Study 2 identified that there were some statistically significant and clinically important differences between self-injurers and a comparison group of adolescents who also were seeking clinical services but had no history of self-injury. Self-injurers attending a clinic for mental health services were found to be higher in neuroticism, symptoms of panic disorder and depression, had more suicidal ideation, and poorer clarity of feelings, than the clinical comparison group. Also self-injury was significantly associated with the reporting of both emotional abuse and sexual abuse. Nevertheless, these significant differences between the two clinical groups were most often small, with effect sizes that ranged from .09 to .20. Excluding males, or participants who had taken an overdose, did not greatly change these findings. Other hypotheses that predicted self-injurers would report more major life events and more associated perceived stress were not supported.

Few differences were found between clinical self-injurers and the comparison clinical participants when diary data (i.e., mood, daily hassles, and coping) were compared. No significant group differences were found for the average and variance of affect and hassles (both the number of, and associated perceived stress) over the 7-days. A small number of variations in behavioural and cognitive regulation were evident with the diary data. Clinical self-injurers perceived both positive cognitive restructuring and expressing feelings as less helpful across the 7-days, than the non-self-injuring clinical comparison group. Compared to the clinical comparison group, self-injurers were less consistent across the 7-days in perceived helpfulness of seeking social support strategies. These aspects of coping each explained a fair proportion of the variance in differentiating the self-injury group from the clinical comparison group. Fluctuation in perceived helpfulness of problem-focused support appears to have an important role in explaining self-injury, as it explained 23% of the variance. The variance in the broader aspect of coping, seeking social support (frequency used in combination with perceived helpfulness), explained 18% of the variance in self-injury.

The results of the analyses of the diary data re-run with only female participants, and then also without participants who had taken a substance overdose, yielded similar results to those when all participants were included. Analyses of the diary data across the seven days in view of stability and change yielded no significant differences in models of affect, hassles, and coping between the self-injurers and the clinical comparison group. However a trend was identified with self-injurers having a stronger association between negative affect and daily hassles than the non-self-injurers.

The results from the analyses regarding the three days related to self-injury ideation found that positive affect was higher on the day before compared to the day after self-injury ideation. There were no significant variations in negative affect for the three days relating to self-injury ideation. Perceived stress of daily hassles was significantly higher on the day of self-injury ideation compared to the day before. The only aspect of coping that had significant differences across the three days was perceived helpfulness of distraction coping, which was found to be lower on the day of self-injury ideation compared to the day before the self-injury ideation. This highlights that on the day of self-injury ideation coping by distraction was not helpful.

As only five participants reported at least one incident of self-injury during the diary completion period, statistical analyses could not be conducted to test related hypotheses. However descriptive analyses of the three days related to first incident of self-injury identified as might be expected, that on the day before self-injury, positive affect was at its highest and negative affect was at its lowest. On the day of self-injury, positive affect was at its lowest, whilst negative affect was at its highest. In terms of coping, self-injurers reported using more adaptive coping strategies (both active coping and seeking social support) on the day of self-injury, compared to the day before and after. However self-injurers perceived active coping to be least helpful on the day of self-injury. Avoidance coping was also used more frequently on the day of self-injury.

The various coping results obtained from diary data (Study 2B) partially supported the hypothesis that self-injurers would use adaptive coping strategies (i.e., active coping and seeking social support) less often, and maladaptive coping strategies (i.e., avoidance and distraction coping) more often. Specifically, self-injurers used the adaptive coping strategy of positive cognitive restructuring less frequently. Also partial support was obtained for the hypothesis that self-injurers would perceive adaptive coping strategies as less helpful when used, and maladaptive coping strategies as more helpful when used. Specifically, self-injurers perceived the adaptive coping strategies of positive cognitive restructuring and expressing feelings as less helpful. Distraction, a maladaptive coping strategy, was not expected to be perceived by self-injurers as having low helpfulness. However it may have a more specific relationship with self-injury than the current study was able to identify.

The current study provides support for the affect regulation theory of self-injury with evidence that clinical self-injurers experience more difficulty identifying their feelings, and have more symptoms of panic disorder and depression than the clinical non-self-injurers. In addition the results from the analyses regarding the three days

related to first, self-injury ideation and second, self-injury behaviour, provided support for the affect regulation theory of self-injury. Descriptive data indicated that most of the self-injury participants who indicated an initial relief/release/calm feeling reported it being followed by uncomfortable feelings (i.e., annoyance, anger, embarrassment, guilt) and they tended to be angry with themselves for having self-injured, experienced associated embarrassment and guilt for the act, and were worried that someone would discover their self-injury. Contrary to hypotheses self-injurers were not found to pay less attention to their feelings, nor did they have more difficulty with feeling repair. Given the sample was obtained from a clinical setting, self-injurers were not expected to differ from the comparison group in anxiety or depression symptoms, or suicidal ideation, yet self-injurers were higher in each.

In addition the results provide preliminary support for the traumagenic theory of self-injury. The aspects of maltreatment of emotional abuse and sexual abuse both had a significant relationship with self-injury. Furthermore, the reporting of daily hassles was higher on the day of self-injury. These results also highlight the importance of the individual's perception of the stressors in relation to their functioning, as perceived stressfulness of daily hassles was highest on the day of self-injury ideation.

Compared to the non-self-injury clinical comparison group, self-injurers attending a clinic for mental health services were found to be higher in neuroticism. This supported the inclusion of this person-related construct in Study 2, and is consistent with developmental psychopathology propositions.

Overall, these findings highlight the significant relationship between thinking about self-injury and the individual's affect, experiencing and stressfulness of hassles, and use of and perceived helpfulness of coping strategies. It is interesting to consider that even thoughts about self-injury may impact on a person's day-to-day functioning, even without engaging in the behaviour. Similar results may have been found in analyses of first three days related to self-injury behaviour, if there was a larger number of participants who self-injured during the diary period.

## CHAPTER 5

### General Discussion

The studies of adolescent self-injury described here were grounded in three theories. The first was a developmental psychopathology perspective, which is a metatheory pertinent to understanding risk factors and developmental pathways of problem behaviours and mental health (Cicchetti, 1990; Cicchetti & Toth, 1995; Rutter, 1996; Sameroff, 2000; Sroufe & Rutter, 1984). The other two theories that provided a foundation for the current studies were the affect regulation theory of self-injury (Briere & Gil, 1998; Darche, 1990; Favazza & Favazza, 1987; Raine, 1982; Rosen et al., 1990; Yates, 2004) and the traumagenic theory of self-injury (Shapiro, 1987; Yates, 2004). The traumagenic theory and the affect regulation theory provided specific guidance on how affect, affect regulation, stress and maltreatment may cause and covary with self-injury behaviours. Drawing from these theories and the relevant empirical evidence, a series of hypotheses were proposed that focused on self-injury as a correlate of affect regulation, coping and stress processes (daily hassles and life events), a history of maltreatment, neuroticism, and symptoms of depression and anxiety among adolescents (e.g., Darche, 1990; Garrison, Addy et al., 1993; Martin et al., 1995; Ross & Heath, 2002). Both adolescents, seeking clinical services (ages 13 to 17), and young university students (ages 16 to 18) were investigated in this research, since self-injury appears to have the highest prevalence in this age group. Furthermore, previous research has indicated that the majority of clinical patients commenced self-injury during this developmental period (e.g., Kumar et al., 2004). Utilising both a university sample and a clinical sample addressed some of the concerns about the generalisability of previous self-injury research findings.

The research involved a large cross-sectional study of young university students ( $N = 537$ ), a smaller cross-sectional study of adolescent seeking clinical services ( $N = 55$ ), and a diary study with those same adolescents seeking clinical services. All studies were designed to examine covariation between some or all of the constructs mentioned above, and to examine and compare patterns of affect, coping and stress over a short period of time. Few past studies of self-injury have included a repeated measures data collection, and daily data collections over a short period of time have been recommended to allow for the investigation of temporal associations. Temporal associations can increase confidence in drawing cause and effect associations (Cole & Maxwell, 2003).

After a review of many definitions of self-injury that have been proposed, self-injury was defined as the direct and deliberate destruction or alteration of body tissue without conscious suicidal intent, which was consistent with the definition offered by Favazza (1999). Participants in the current studies were most likely to report cutting, yet other behaviours (i.e., burning, scraping or scratching skin) were also reported by a number of participants. It was of interest to consider differences between university participants who had self-injured in the previous 12 months and those who had a history of self-injury yet had not done so in the previous 12 months. The university participants who had injured themselves in the previous 12 months consumed alcohol and/or used drugs in association with their self-injury, and they paid more attention to their feelings, even though they had anxiety and depression symptomatology that were in the normal range when compared to the university students who had injured but had not done so in the previous 12 months. In addition, most of the university participants who had self-injured in the previous 12 months reported having experienced physical abuse or neglect. University participants who had self-injured in the previous 12 months tended to use fewer active coping strategies. It is plausible that these individuals who had self-injured in the last 12 months are more impulsive and reckless, given their drug and alcohol use, when compared to individuals who do not engage in self-injury.

Care was taken to identify individuals who engaged in self-injury without accompanying suicidal ideation. Suicidal ideation was measured and examined to determine whether this was accomplished. Generally, these studies did isolate self-injurers from those who had engaged also in suicidal ideation and/or attempts. Yet, it is worth noting that the majority of participants who had self-injured by taking an overdose had elevated scores for both depression and suicidal ideation. Rodham and colleagues (2004) reported that more adolescents who only took overdoses wanted to die and wanted to find out if someone loved them, compared to adolescents who had cut themselves only. However similar findings for self-reported intent of the act were not found in the current study. In the current study participants who had taken overdoses reported similar motivations to those reported by individuals who engaged in other types of self-injury (for example, to alter their feelings). These results of the current thesis are similar to findings reported by Laye-Gindhu and Schonert-Reichl (2005), which showed that only females reported tablet overdoses as a form of self-injury, and that the most frequently reported motivation for any type of self-injury related to the affect regulation function of self-injury.



*Overview of Findings*

A summary of the major findings from all studies is provided in Table 5.1. This table summarises results from the three comparison studies of self-injurers to non-self-injurers. These three comparisons were between university students, subgroups of these university students matched on age, gender, and living arrangement, and groups of adolescent mental health clinic clients who were matched on age and gender. In Table 5.1, results from the third set of comparisons included data from a cross-sectional survey of adolescents in clinical services, and a diary study with the same participants. The findings from these two parts of this study are summarised in the last two columns, respectively.

*General Findings and Comparison of Results between Studies*

In this section, general findings regarding the correlates of self-injury are described, and findings that emerged in a sample of university students are compared to those when the sample included slightly younger adolescents who were seeking mental health services. Following this section, more detail of results is provided, previous research is compared to the current study findings, and implications for theory are discussed.

*Findings compared between studies.* There were few consistent findings across the two samples and studies when comparing adolescents who were attending university (ages 17 to 19) and slightly younger adolescents (ages 13 to 17) who were seeking mental health services (“clinical adolescents”). More specifically, only one aspect of affect regulation, clarity of feelings, and the personality characteristic of neuroticism were associated with self-injurious behaviour among both the university students and the clinical adolescents. Yet, there were a number of correlates of self-injury within one sample and not the other. Three aspects of coping (active, avoidance, and distraction), the remaining two aspects of affect regulation (feeling repair, and attention to feelings), and negative affect were associated with self-injury in the study of university students, but were not significantly associated when tested in the clinical sample. As might be expected, depression was associated with self-injury among the clinical sample, but not in the study of university students.

Table 5.1

*Summary of Key Findings*

Variable	University unmatched (Study 1A) N = 537, 86 self-injurers (50% female), 66 self-injury ideators (83.3% female)	University matched (Study 1C) N = 50, 25 self-injurers (80% female)	Clinical matched (Study 2) N = 55, 26 self-injurers (88% female)	Clinical diary (Study 2 diary study) N = 47, 25 self-injurers (88% female)
Affect regulation: Attention to feelings	Self-injurers paid less attention to their feelings than comparison and self-injury ideation groups.	n.s.	n.s.	N/a
Affect regulation: Clarity of feelings	Self-injurers and self-injury ideators had more difficulty with clarity of feelings than the comparison group. Self-injury ideators did not differ from self-injurers.	Self-injurers had more difficulty with clarity of feelings than the comparison group.	Self-injurers had more difficulty with clarity of feelings than the comparison group.	N/a
Affect regulation: Feeling repair	Self-injurers were lower in repair of feelings than the comparison and self-injury ideation groups.	n.s.	n.s.	N/a
Positive affect	n.s.	n.s.	N/a	n.s.
Negative affect	Self-injurers were higher in negative affect than comparison group. Self-injury ideators did not differ from self-injurers.	Self-injurers were higher in negative affect than comparison group.	N/a	n.s.
Anxiety	N/a	n.s.	n.s.	N/a
Depression	N/a	n.s.	Self-injurers had more depressive symptoms than comparison group.	N/a
Neuroticism	Self-injurers were higher in neuroticism than the comparison group, yet lower than self-injury ideators.	Self-injurers were higher in neuroticism than the comparison group.	Self-injurers were higher in neuroticism than the comparison group.	N/a

Variable	University unmatched (Study 1A) N = 537, 86 self-injurers (50% female), 66 self-injury ideators (83.3% female)	University matched (Study 1C) N = 50, 25 self-injurers (80% female)	Clinical matched (Study 2) N = 55, 26 self-injurers (88% female)	Clinical diary (Study 2 diary study) N = 47, 25 self-injurers (88% female)
Active coping	Self-injurers and self-injury ideators perceived active coping as less helpful than the comparison group. Self-injury ideators did not differ from self-injurers. (n.s. for use of active coping)	n.s.	N/a	n.s.
Distraction coping	Self-injurers used more distraction coping than the comparison and self-injury ideation groups (n.s. for perceived helpfulness)	n.s.	N/a	n.s.
Avoidance coping	Self-injurers and self-injury ideators used avoidance coping more, and self-injurers perceived these strategies as more helpful, than the comparison group. Self-injury ideators did not differ from self-injurers in use of avoidance coping.	n.s.	N/a	n.s.
Seeking social support	Self-injurers used seeking social support strategies more and perceived them as less helpful than the comparison and self-injury ideation groups.	n.s.	N/a	Self-injurers had greater fluctuations in perceived helpfulness of seeking social support strategies across the 7-days, than the comparison group.

Variable	University unmatched (Study 1A) N = 537, 86 self-injurers (50% female), 66 self-injury ideators (83.3% female)	University matched (Study 1C) N = 50, 25 self-injurers (80% female)	Clinical matched (Study 2) N = 55, 26 self-injurers (88% female)	Clinical diary (Study 2 diary study) N = 47, 25 self-injurers (88% female)
Maltreatment	N/a	A higher proportion of self-injurers than the comparison group reported emotional abuse and physical neglect. (n.s. for sexual abuse & emotional neglect.)	A higher proportion of self-injurers than the comparison group reported emotional abuse and sexual abuse than the comparison group.	N/a
Psychological control	N/a	n.s.	N/a	N/a
Daily hassles, number occurred	Self-injurers reported more daily hassles than the comparison and self-injury ideation groups.	Self-injurers reported more daily hassles than the comparison group.	N/a	n.s.
Daily hassles, perceived stressfulness	Self-injurers perceived more stress from daily hassles than the comparison group, but not the self-injury ideators.	Self-injurers perceived more stress from daily hassles than the comparison group.	N/a	n.s.
Life events, recency	N/a	n.s.	n.s.	N/a
Life events, perceived stressfulness	N/a	n.s.	n.s.	N/a

n.s. = non-significant findings between groups.

N/a = not applicable (not assessed in the specified study).

The clinical and university studies differed in terms of which aspects of maltreatment, daily hassles, and coping were associated with self-injury. In addition, all of these significant associations were small in size and a number of the measured variables were not significantly associated with self-injury in either sample, including positive affect, major life events and anxiety.

When university students who self-injured were directly compared to the clinical adolescents who self-injured these groups did differ in anxiety. The university students who self-injured had lower levels of anxiety, on average, when compared to the clinical adolescents. This was somewhat surprising given that both groups of self-injurers did not have differing average levels of anxiety when compared to non-self-injurers. There also were differences in depression between university student self-injurers and clinical adolescents who self-injured. Hence, not only did clinical adolescent self-injurers have higher depression scores than non-self-injurers attending the same service, they also were significantly higher in depression level, on average, than university students who self-injured. Finally, university students who self-injured were significantly lower in feeling repair than both the university student comparison group who did not self-injure and the adolescents who were attending mental services and engaging in self-injury.

*Diary study findings.* When measures of affect, daily hassles and coping behaviours were collected daily and were compared between clinical self-injurers and the clinical comparison participants, few differences were found. No significant group differences were found for the average and variance of affect and hassles (both the number of, and associated perceived stress) over the 7-days. Only a small number of differences were found when comparing coping behaviours between groups, whereby clinical self-injurers perceived both positive cognitive restructuring and expressing feelings as less helpful across the 7-days, than the non-self-injuring clinical comparison group. In addition, compared to the clinical comparison group, self-injurers were less consistent across the 7-days in perceived helpfulness of support seeking strategies. Fluctuation in perceived helpfulness of problem-focused support explained the most variance in self-injury, namely 23%. However, there were no differences in the various measurements of coping behaviours.

Further, no significant differences in growth patterns of affect, hassles, and coping were found when the self-injurers were compared to the matched clinical comparison group using hierarchical linear modelling. In addition, multiple hypothesis regarding differences in associations between affect, daily hassles and coping for self-injurers compared to others clinical adolescents were tested. Most of these hypotheses

were not supported. However, a trend was identified when the association between negative affect and daily hassles over the seven days was compared between self-injurers and non-self-injurers who completed the diary study, with a stronger association among self-injurers than others.

The clinical diary study also involved analyses regarding the three days related to self-injury ideation, and found that positive affect was higher on the day before compared to the day after self-injury ideation. There were no significant variations in negative affect for the three days relating to self-injury ideation. Perceived stress of daily hassles was significantly higher on the day of self-injury ideation compared to the day before. Perceived helpfulness of distraction coping was the only aspect of coping that showed significant differences across the three days, and was found to be lower on the day of self-injury ideation compared to the day before the self-injury ideation. Thus, on the day of self-injury ideation, coping by distraction was less helpful than on the day before or after the ideation.

*Phenomenological findings.* In addition to these quantitative comparisons of self-injurers to other young people, a phenomenological analysis was completed to provide a greater depth of understanding about adolescents' perceptions of their self-injurious behaviours. This analysis was based on data collected during interviews developed as an extension of the interviews conducted by Ross and Heath (2002). The use of open-ended questions and descriptions of adolescents' perspectives on their self-injury have been rarely reported in the research literature. As noted by Zaslow and Takanishi (1993), much of the existing research with adolescents had failed to take into account the adolescent perspective. A lack of sufficient consideration of adolescents' perspectives may result in an incomplete or distorted portrayal of adolescents' experiences of self-injury, which may subsequently limit the effectiveness of prevention and intervention strategies (Laye-Gindhu & Schonert-Reichl, 2005).

Generally, the accounts from adolescents gathered and summarised here were consistent with some of the quantitative findings, but added depth and meaning. All reasons provided by participants for their self-injury were associated with feeling negative emotions, emotion recognition, emotion regulation, and/or the perceived need to communicate emotion to others. Most participants reported feelings of discomfort and indicated that they were unable to tolerate the feelings, and self-injury was their strategy to manage the emotions. The suggestion that self-injury serves the function of coping with affective states was not supported by the qualitative, interview responses by the participants in this study. While many of the participants highlighted that the

intended aim to engage in self-injury was to deal with their emotive states, this appeared to be an unsuccessful emotional management strategy, as most reported that they did not feel better after self-injury. Participants acknowledged a range of issues that they were dealing with at the time of their first act of self-injury, with family difficulties reported most often. In relation to the issues self-injurers experienced, it appears that university students who reported self-injury engaged in a variety of coping behaviours irrespective of whether they found them helpful.

Finally, similar to Laye-Gindhu and Schonert-Reichl (2005), the interviews conducted with adolescents in the current study with university students who self-injured highlighted the chronic, repetitive nature of self-injury, as well as the fact that some individuals engaged in self-injury a small number of times only. Ross and Heath (2002) have described how some adolescents may self-injure a small number of times in response to acute stressors, whereas other adolescents may continue to self-injure in response to chronic stressors. It appeared that this might be true in the current studies. However, the sample sizes did not allow statistical analyses to differentiate these groups, and future research should address this issue.

#### *Self-injury, Affect Regulation and Affect*

In the affect regulation theory of self-injury, clinicians and researchers have proposed that the function of self-injury is to regulate affect through a balance between control and expression, and more specifically, that individuals self-injure to manage intolerable affect (Briere & Gil, 1998; Darche, 1990; Favazza & Favazza, 1987; Raine, 1982; Rosen et al., 1990; Yates, 2004). Although widely described in the clinical literature, specific aspects of affect and affect regulation in relation to adolescent self-injury have rarely been studied previously. In addition, coping behaviours and adolescents' perceptions of the helpfulness of their coping behaviours were measured because of the overlap between conceptualisations of affect regulation and conceptualisations of coping during adolescence (Skinner & Zimmer-Gembeck, 2007). Coping also was measured to examine behavioural and cognitive regulation in the face of stress.

*Affect regulation.* The definition and specific components included in a measure of affect regulation are often debated (e.g., Davies et al., 1998; Gross, 1998; Southam-Gerow & Kendall, 2002). For the current study, however, affect regulation was defined as a process that includes the ability to respond emotionally and to attune one's emotion experience and expression to contextual demands (Cole et al., 1994), and measured in a

way that was consistent with this definition (Salovey et al., 1995). Hence, affect regulation has a number of components and those that were measured here included attention to feelings, clarity of feelings, and feeling repair (i.e., attempts to repair unpleasant moods and/or maintain pleasant ones).

The association between clarity of feelings and self-injury was one of the most consistent findings in the current studies. In all studies (i.e., large university survey, matched university sample, matched clinical sample) self-injurers had more difficulty with clarifying their feelings than other participants. Hence, this difficulty exists among young adolescent self-injurers who are attending university and among somewhat younger adolescents seeking clinical services. These findings highlight that adolescents who self-injure may have a deficit in distinguishing between their feelings and as a result be less able to identify specific feeling states. This skill is important for the next step in affect regulation that involves knowing more helpful ways to respond to feeling states.

Attention to feelings and feeling repair were the two other aspects of affect regulation that were examined as correlates of self-injury. It was expected that self-injurers would pay significantly more attention to their feelings and have more difficulties with repair, given previous research that has found that individuals self-injure in response to their emotions (e.g., Briere & Gil, 1998; Darche, 1990). Although analyses of the interview data gathered in this study suggested that adolescents perceive that they injure themselves for these reasons, the survey findings were inconsistent and somewhat contrary to hypotheses. In the large, university study that compared self-injurers to other unmatched university students, self-injurers reported paying less attention to their feelings and having more difficulties with repairing their feelings than the comparison group. However, group differences in attention to feelings and feeling repair were not found when self-injurers were compared to a much smaller group of university students who were matched for age, gender, and living arrangement, and when 26 self-injurers seeking mental health services were compared to 29 other adolescents who were attending the same services and were matched for age and gender to the self-injury group.

In general, the inconsistent group differences across the three components of affect regulation measured here contradict what would be expected based on some previous theory and research. For example, support has previously been found for the functional sequence of the Trait Meta Mood Scale (TMMS) constructs (Martinez-Pons, 1998; Palmer, Donaldson, & Stough, 2003). The functional sequence model specifies



that clarity of feelings would not be possible without attention to feelings, and the capacity to repair negative feelings would not be possible unless feelings were experienced clearly. According to this model, since self-injurers have difficulty clarifying their feelings then they also should not be paying sufficient attention to their feelings, and they would also consequently lack capacity to effectively repair uncomfortable feelings whilst maintaining comfortable feelings.

Some support for the functional sequence of affect regulation was found, however, among the large university sample comparison (see the first column of Table 5.1). These findings suggest that all three components of affect regulation are difficulties for adolescent self-injurers attending university. No previous research has examined these three aspects of affect regulation in relation to self-injury in adolescent samples. This finding provides empirically derived data that contributes to the affect regulation theory by demonstrating that one important correlate of adolescent self-injury is affect regulation problems. In particular, self-injurers seem to have difficulty determining emotional reactions and they may use self-injury in response to these difficulties. Perhaps self-injury may even be one mechanism that helps adolescents to gain affective clarity.

It is imperative to highlight that the TMMS, which was used in the current thesis, measures individuals' perceived ability to effectively regulate and manage emotions, and is not necessarily the individuals' actual ability or capacity (Palmer, Gignac, Bates, & Stough, 2003). It seems important for future research to obtain objective measures of affect regulation to further assess the affect regulation theory of self-injury. For example, future research could utilise physiological measures, such as respiratory sinus arrhythmia - a measure of cardiac activity and peripheral serotonin levels, which has been used in one study of a sample of 'parasuicidal' adolescent females (Crowell et al., 2005).

One of the three aspects of alexithymia, namely difficulty with identifying feelings, appears to overlap with the affect regulation construct of clarity of feelings. Alexithymia refers to a cognitive-affect disturbance that affects the way individuals experience and express their emotions (Taylor, 1984). More simply, alexithymia relates to difficulty identifying and describing feelings, and externally oriented thinking (Bagby, Parker, & Taylor, 1994). A previous empirical study has indicated the important relationship between self-injury and alexithymia. Zlotnick et al. (1996) found that among female inpatients, self-injury was related to a greater degree of alexithymia. Given similarities between these two constructs it is likely that researchers can gain a

better understanding of adolescent self-injury and its relationship with affect regulation by also considering the research domain of emotional awareness. Lane and Schwartz (1987) proposed a cognitive-developmental model of emotional awareness that ranges from sensorimotor reflexive awareness (i.e., bodily sensations) to formal operational awareness. Previous research has shown that males score lower on emotional awareness (Barrett, Lane, Sechrest, & Schwartz, 2000; Ciarrochi, Scott, Deane, & Heaven, 2003) and alexithymia (Kokkonen et al., 2001) measures than females. Ciarrochi et al. (2003) identified that level of emotional awareness was associated with amount of social support in university students. In addition, Ciarrochi and Scott (2006) found that difficulty identifying and describing emotions were associated with anxiety and less positive mood one year later in university students. It is important to note that even though sex differences have been identified in previous research in relation to identifying emotions, Ciarrochi, Chan, and Bajgar (2001) did not find that high school females were more skilled in emotion regulation than males. These previous research findings and the current findings suggest possible pathways to examine in future studies; a pathway between emotional awareness, social support, and self-injury and other mental health symptomatology seems likely and should be examined in future research. It would also be of interest for future research to further investigate the emotional awareness of adolescents who self-injure, and to compare emotional awareness to same age and sex adolescents who have particular mental health problems or are relatively free of mental health problems.

*Positive and negative affect.* Data on positive and negative affect were collected from the university sample on a single survey asking for reports of affect in the past 24 hours, whereas data on positive and negative affect were collected from adolescents seeking mental services using daily reports over a period of seven days. In addition, participants completed measures of depression a single time in both studies.

Contrary to hypotheses, positive affect was not significantly lower for self-injurers than the comparison groups, and this was found in both the university and the clinical studies. Although not directly comparable given these different measurement techniques, inconsistent findings for negative affect were found in the current research studies. As hypothesised university students who self-injured had higher levels of negative affect than other university students (both the unmatched and matched groups). Yet, the diary study revealed no differences in negative affect when self-injurers and other adolescents were compared. This suggests that all adolescents accessing mental health services are, in general, higher in negative affect, thus indicative of their need for

mental health intervention, and that in a clinical population of adolescents, self-injurers may be experiencing no more negative affect than other adolescents with mental health problems.

Previous research has found significant relationships between positive affect and positive functioning (e.g., life satisfaction and self-esteem), but not dysfunction (Huebner & Dew, 1995; Palmer et al., 2002), whereas negative affect has been associated with aspects of dysfunction. These previous research findings may explain why this thesis only found associations between negative affect and self-injury, an aspect of dysfunction, and not between positive affect and self-injury. It may be that the important difference between self-injurers and non-self-injury participants is not a lack of positive experiences, but rather the increase in negative experiences and associated negative affect and responses.

*Depression.* Still within the realm of negative emotionality, depression was examined as a correlate of self-injury. As was found with negative affect, inconsistent findings were found for depression across studies. However, this inconsistency was in direct contrast to the findings for negative affect, such that no difference was identified when university students who self-injured were compared to other students, but a difference was found when adolescent self-injurers seeking mental health service were compared to other adolescents at the same service. As hypothesised, the clinical self-injurers were significantly higher in depressive symptomatology than the clinical comparison group. These latter results are consistent with Darche's (1990) finding that female adolescent self-injuring inpatients had more depressive symptoms than non-self-injuring inpatients. However the current findings with respect to depressive symptomatology in the university sample were inconsistent with previous research conducted by Garrison and colleagues (1993), Martin and colleagues (1991) and Ross and Heath (2002). In all of these studies (with high school students), self-injuring high school students were higher in depression than non-self-injuring students, however these high school students were slightly younger than the university students who participated in the current study.

*Anxiety.* Anxiety also was measured in all studies reported here. In each study, adolescents completed a measure of anxiety at a single time in consideration for the prior three months. Using this method, anxiety did not differ between groups of self-injurers and others. These results were contrary to the prediction that self-injurers would be higher in anxiety than other university students and when compared to other adolescents seeking mental health services. These results are inconsistent with previous

studies of U.S. high school students and clinical samples, which found self-injurers to be higher in anxiety than other high school students (Darche, 1990; Ross & Heath, 2003). The differing findings may result from the measure of anxiety that was used in the current thesis, which assessed for five components of anxiety similar to the DSM-IV diagnosis. Ross and Heath (2003) and Darche (1990) appear to have used more general measures of anxiety (i.e., Beck Anxiety Inventory, and anxiety scale of the Symptom Checklist-90). These measures may include elements of other symptomatology, such as depressive affect and somatisation. Alternatively, the difference between the current results for anxiety and previous findings may relate to the longer time frame used in the measure in the current studies.

*Summary of affect and affect regulation findings.* Overall, in relation to affect the results reported here highlight that both clinical and university adolescents who self-injure do not differ in positive emotion and anxiety symptoms when compared to non-self-injuring adolescents. Self-injurers were consistently identified to have more difficulty with clarity of feelings compared to the comparison groups. Furthermore, these findings suggest that non-clinical (university) self-injuring adolescents experience more negative affect in general, whereas both clinical groups were high in negative affect and no group difference was found. Yet, clinical self-injurers have more depressive symptomatology than clinical non-self-injurers. These differences are of interest and have intuitive appeal in that clinical self-injurers are higher in depression, a disorder that warrants clinical attention. One possibility is that the university students' self-injurious behaviours assist them in managing their negative affect, so that it does not develop into depression. However, self-injury has not been as successful in dampening depressive symptoms for those self-injuring adolescents who were seeking mental health services.

The phenomenological study of self-injuring university participants highlighted the intended aim to engage in self-injury was to deal with their emotional states. For a number of participants this was not particularly successful, as they did not tend to report that they had improved affect following self-injury. In addition, the analysis of affect on the day before, during, and after self-injury ideation revealed that positive affect was at its lowest, and negative affect at its highest on the day of self-injury ideation. It is important for future research to continue to focus on negative affect before, during and after self-injury to develop a more comprehensive understanding of its relationship with acts of self-injury. The current study was limited by the few instances of actual self-injury that occurred during the course of the diary study. Future research using such

repeated assessments will be important in that they may better identify the self-injurers' daily experiences of affect, and suggest some day-to-day variability in negative mood for university self-injurers that was not evident for clinical self-injurers.

### *Self-Injury and Coping*

In addition to studying affect regulation, behavioural and cognitive regulation, operationalised as coping with stress, were investigated in the current studies. In addition, adolescents' perceptions of the helpfulness of their coping strategies were assessed. In these studies, coping was assessed at one time for university students, and each day over a period of seven days for the clinical study. Whilst participants identified recent stressors, the coping items were completed with all recent stressors (daily hassles) in mind.

Overall, there was mixed support for the hypotheses that generally predicted self-injurers would use less functional coping strategies (i.e., active, and seeking social support) and more dysfunctional coping strategies (i.e., avoidance, and distraction) than others. In addition it was predicted that self-injurers would report the coping strategies they used as less helpful than the other participants. Consistent with hypotheses, university self-injurers reported using more distraction and avoidance coping, and perceived that avoidance coping was more helpful than the unmatched comparison group. Also consistent with hypotheses, unmatched university self-injurers perceived both active and support seeking coping as less helpful than the non-self-injury comparison group. It can subsequently be speculated that individuals engage in self-injury when other more adaptive, helpful ways of coping are perceived as unhelpful. Unexpectedly, university self-injurers reported using significantly more support seeking strategies than the unmatched comparison group. Yet, even though self-injurers used more support seeking strategies, they perceived this form of coping as less helpful. Interestingly, there were no similar group differences with the university sample that was matched for age, gender and living arrangement.

In relation to the clinical sample, few group differences were detected. The clinical adolescents who self-injured and those adolescents who had no history of self-injury were more similar than dissimilar in their use of various types of coping strategies and in their perceived helpfulness of the coping strategies that they used. There was only one exception to this pattern whereby clinical self-injurers, compared to the clinical comparison group, demonstrated more variability in their perceived helpfulness of seeking social support over the seven days of the diary. In other words,

self-injurers who were seeking mental health services had more fluctuations in their perceptions of the helpfulness of social support, with greater highs and low over the seven days, than other adolescents who were seeking mental health services.

It has been rare to study coping behaviours among adolescents who self-injure. In this study, university self-injurers utilised more avoidance coping strategies. This finding is consistent with those reported by Evans et al. (2005) and Haines and Williams (1997). Haines and Williams (1997) found that self-injuring male prisoners utilised more problem avoidance coping behaviours than other males (both prisoners and a community comparison group), and Evans et al. (2005) found that self-injuring high school students were more likely than other adolescents to stay in their room (i.e., avoidance). Furthermore, there have been many studies that show that avoidance coping is associated with maladjustment among adolescents (e.g., Sandler et al., 1994; Seiffge-Krenke, 2000; Seiffge-Krenke & Klessinger, 2000).

The inconsistent findings related to coping for the current studies appear to highlight the difficulties with measuring coping that have been discussed elsewhere (e.g., Compas et al., 2001), such as over-reliance on self-report data, retrospective measurement, and assessment of general (dispositional) versus specific stressor coping. The diary methodology in Study 2 was incorporated to minimise some of these difficulties in the view to increase the usefulness of the data obtained. Furthermore, the varied and inconsistent results obtained in the current studies appear to highlight the difficulties with measuring coping as previously discussed Skinner, Edge, Altman, and Sherwood (2003). Some of the difficulties identified by Skinner and colleagues (2003) included lack of clarity regarding coping category definitions, difficulty with comprehensiveness of the categories, “problems determining functional homogeneity and functional distinctiveness” (p. 221). Whilst in general the study of coping is viewed within the context of stress (Skinner et al., 2003), it seems that the most appropriate time frame for the measurement of coping is still yet to be determined. Other research with adults asks participants to identify the most stressful event of the day in which to respond regarding their coping response (e.g., Armeli et al., 2000, Gunthert et al., 1999, 2002; Stone et al., 1995). However this has been considered to underestimate the total stressfulness of the day, in that it does not obtain information regarding all of the stressful events faced by the individual (Armeli et al., 2000).

Social support appeared to have a particularly important relationship with self-injury, as significant differences in this coping strategy were found when assessed in varying ways and in all studies reported here. These findings suggest that self-injurers

do not have as much social support as others participants, and if they do have people to go to for emotional and other assistance, these individuals may not be providing the support that adolescents perceive they need. It also seems possible that the individuals providing social support are quite variable in the support provided (i.e., some days may be very supportive, whereas on other days may be quite rejecting) such that self-injurers may not know whether or not to seek their support. In addition, it is imperative to consider the adolescent's role in their perception of social support sought via support seeking strategies. Self-injurers were higher in neuroticism than others. This may suggest that adolescents who self-injure perceive the same support as less helpful than other adolescents who do not self-injure and are, on average, lower in neuroticism. Alternatively, it is possible that adolescents who self-injure have more difficulties than others in asking for support or making their needs known to others, and this, in turn, results in social support that is perceived as less helpful. In other words, it is possible that social support providers do not adequately meet the self-injuring adolescents' needs because of the ways in which the self-injuring adolescent seeks support.

It also is possible that since self-injurers have poorer understanding of their emotional experiences, on average, than other adolescents (i.e., clarity of feelings) they may not seek support until they are overwhelmed by their emotions and unable to best utilise and regulate their support seeking strategies. Boekaerts (1996) had proposed that young people may be more vulnerable to the effects of a stressor when they are first confronted with it, because at that point they may not have access to a fully mature social support system or to adequate self-regulating skills. This suggests that young people will have a limited range of coping behaviours that are available and may be overly taxed by novel stressors when they do not have support sources to aid in their access to these resources. Thus, a possible reason for why self-injury begins in adolescence is that the developmental conflicts and demands of adolescence are greater than those in childhood and can overwhelm already limited self-regulation skills and coping resources. In addition, variability in the nature of stressors that are experienced, and development of adequate self-regulation skills and social support systems implies that some adolescents may use self-injury only for a limited time until stress dissipates and/or other helpful coping resources (including supportive others) are added to their existing coping behaviours, whereas others may continue to utilise self-injury to deal with or communicate emotions when they continue to experience stress and cannot find other helpful coping resources or social support to replace these behaviours.

*Self-injury and Neuroticism*

In the current studies, the personality construct of neuroticism was examined as a correlate of self-injury. This is consistent with the call within the developmental psychopathology framework to consider person-specific variables when studying social contextual influences (e.g., Cicchetti & Rogosch, 1999; Sroufe & Rutter, 1984). Consistent support was found across both studies for the hypothesis that self-injurers would be higher in neuroticism than non-self-injurers. Even though previous research has identified that neuroticism is highest in adolescence when compared to younger and older age groups (e.g., Arnett, 1999), and females increase in neuroticism between the ages of 12 and 18 years (McCrae et al., 2002), self-injurers in the current studies were still higher in neuroticism than similar aged non-self-injurers. These findings are suggestive that neuroticism is a correlate of self-injury. However, there is debate over whether neuroticism is best considered as non-specific risk factor as previous research has identified associations between neuroticism and other mental health problems (e.g., Shiner & Caspi, 2003).

Future research would add to these findings by identifying pathways between neuroticism and self-injury, while also considering other mental health problems. Considering neuroticism in relation to other variables that may be more proximally associated with self-injury could do this. For example, in the current studies, neuroticism was correlated with clarity of feelings, feeling repair, negative affect, positive affect, perceived helpfulness of active coping, frequency of avoidant coping, anxiety, depression, and emotional abuse. Many of these variables also were correlated with self-injury, suggesting that affect and affect regulation, mental health issues, and coping may be more proximal risk factors for self-injury that could account for the association between neuroticism and self-injury. Future research would require larger samples of young people who self-injure to examine such complicated pathways in a comprehensive model of self-injury.

Consistent with previous research that has provided evidence of several attentional biases related to trait anxiety, it may be that, given the conceptual overlap between neuroticism and trait anxiety, self-injurers who have elevated neuroticism may have attentional biases that causes them undue distress (Derryberry & Reed, 2002). These attentional biases might include more negative appraisals of stressful or neutral events and greater emotional reactions to these events (Ormel & Wohlfarth, 1991). Individuals higher in neuroticism would be expected to experience more negative



emotions, because of their particular perceptions of events and attentional biases. As adolescents who self-injure are higher in neuroticism, they may show perceptual and attentional biases that prompt more extreme feelings of distress. In the current studies, neuroticism, perceptions of the stressfulness of daily hassles, and effectiveness of coping strategies all had significant relationships with self-injury, supporting these possibilities. The study of attentional biases among individuals who self-injure is one future direction for research that may be quite promising for understanding the onset and maintenance of self-injurious behaviour.

### *Self-injury and Stressful Experiences*

The traumagenic model of self-injury identifies a number of distal and proximal risk factors for self-injury (e.g., Shapiro, 1987; Yates, 2004). Some of the most important distal risk factors identified within this theory are childhood traumatic experiences, most often in the realm of caregiver relationships. More proximal stressors, in the form of daily hassles and major stressful life events, have been described as important correlates of self-injury, as well (Garrison, Addy et al., 1993). Maltreatment, daily hassles, and stressful life events were examined as correlates of self-injury in the current thesis. In the current studies, lifetime retrospective reports of various forms of maltreatment were assessed via self-report measures and interviews for university students and adolescents seeking mental health services. The forms of maltreatment that were measured included sexual abuse, physical abuse, emotional abuse, physical neglect, and emotional neglect. Daily hassles were measured for the 24-hour time period preceding survey completion, and major life events were measured for the lifespan and were reported in terms of the recency and perceived stressfulness of the event. The measurement of daily hassles for seven consecutive days in a clinical sample of adolescents was a unique aspect of the current studies.

*Maltreatment.* Consistent with hypotheses, a higher percentage of self-injurers compared to other adolescents reported a history of maltreatment. This covariation between traumatic experiences and self-injury provides some support for this model. However, not all forms of maltreatment measured here were associated with self-injury, and the associations that were found depended on the sample to some degree.

Both university students and clinical adolescents who self-injured reported experiencing more emotional abuse than the non-self-injury comparison groups. However, the university self-injurers also reported experiencing more physical neglect than the comparison group, whereas the clinical self-injurers reported experiencing

more sexual abuse. The correlation between self-injury and a history of sexual abuse among clinical adolescents is consistent with previous research by Zlotnick et al. (1999). However, the lack of this association among university students is inconsistent with the findings of Boudewyn and Liem (1995), who found that sexual abuse was associated with self-injury in their sample of 438 (60 % female) university students, and 69% of the self-injurers were female. A possible reason for differing results is that Boudewyn and Liem (1995) controlled for age and gender in their analyses, and also that half of the self-injurers in the current study of university students were female. At the least, the findings show that associations between self-injury and maltreatment forms may depend on the sampling strategy.

*Self-injury, daily hassles, and stressful life events.* In general, some associations between stress and self-injury were found, as predicted. Yet, these associations were not consistent across samples or measures of stress. As hypothesised, the university self-injurers experienced more daily hassles and perceived these hassles as more distressing compared to the non-self-injurers (both unmatched and matched samples). Conversely, group differences in daily hassles or perceived stressfulness of hassles were not found for the clinical sample. The reasons for the finding in one sample and not the other are unclear. One possible explanation is the differing method of data collection across the two studies, with the university students reporting hassles over the last week and the clinical participants reporting hassles daily for seven consecutive days, however the hassles measure was found to have sufficient reliability in each study.

Regardless of the sample, there were no differences in the stressful life events of self-injurers and non-self-injurers. These findings were contrary to hypotheses and differ to one previous research study of self-injury that examined a broad range of stressful life events among high school participants (Garrison, Addy et al., 1993).

### *Self-injury Ideation*

*Comparisons of university self-injury ideators to non-self-injurers and self-injurers.* Adolescents who had thoughts of self-injury were also identified in the university study, which is a unique contribution of the current research program. Significant differences between self-injury ideators and both the self-injurers and comparison groups in the large unmatched university study were identified. In relation to the non-self-injurers, self-injury ideators were higher in negative affect and neuroticism, had more difficulty with clarifying feelings and maintaining positive emotions whilst changing negative emotions (i.e., feeling repair), experienced more

daily hassles and associated perceived stress, utilised more avoidance coping, and perceived active coping as less helpfulness. In sum, self-injury ideators had much in common with self-injurers.

In relation to the university self-injurers, self-injury ideators did differ in some ways, however. Self-injury ideators reported fewer daily hassles, and utilised less distraction coping when compared to university students who self-injured. In addition, self-injury ideators were unexpectedly higher in neuroticism than self-injurers, and utilised more feeling repair and paid more attention to their feelings. Thus, in general, university self-injury ideators appeared more similar to self-injurers than to non-self-injurers. That self-injury ideators engage in more feeling repair and attend more to their feelings may actually mean they use more functional affect regulation strategies that protect them from engaging in self-injury.

*Days surrounding self-injury ideation in clinical adolescents.* The clinical diary study was utilised to investigate differences across three days relating to the first incident of self-injury ideation in clinical participants. This is the first known study to examine affect, coping and stress on the day before, day off, and day after self-injury ideation. Positive affect was higher on the day before compared to the day after self-injury ideation. Perceived stress of daily hassles was significantly higher on the day of self-injury ideation compared to the day before, and perceived helpfulness of distraction coping strategies used was lower on the day of self-injury ideation compared to the day before self-injury ideation. It is possible that the actual occurrence of self-injury ideation caused concern for the participants for various reasons, such as attempting to decrease self-injury and having thoughts about it meant it was difficult for them to not have the urge to self-injure, which subsequently affected their mood.

The few self-injury acts that occurred during the diary study reported here resulted in the inability to examine affect, coping and stress on the day before, day of, and day after self-injury behaviours. Instead, descriptions of the behaviours were provided. It is recommended that future research use similar diary procedures, with appropriate increases in sample size to allow for such quantitative analyses of daily data.

### *Self-injury and Suicidal Ideation*

The definition of self-injury used here attempted to isolate self-injury behaviours from suicidal ideation and suicidal behaviours. This was expected to result in no differences in suicidal ideation when self-injurers were compared to other participants.

Despite participants verbally self-reporting no suicidal ideation or intent for their self-injury, results did still reveal higher levels of suicidal ideation among self-injurers, whether university students or adolescents seeking mental health services. The current results seem consistent with those reported by Martin et al. (1995) whereby a small number of adolescents who engaged in self-injury also admitted having suicidal ideation, and some even had previously attempted suicide. Overall, even though it may be possible to isolate self-injury behaviours from suicidal behaviours conceptually, it may not be possible empirically.

### *Limitations of the Current Studies*

A number of limitations in the current research program must be acknowledged. Whilst the studies reported here relied solely on information provided by adolescents, which may be considered a limitation due to the possibility for reporter bias and shared method variance, adolescents are thought to be better informants of internalising disorders (i.e., anxiety, depression, suicidal ideation) than alternative informants, such as parents (Grant et al., 2003), and it is very likely that adolescents' perspectives of their feelings and behaviours are most important when studying significant clinical issues. However, future research might supplement adolescent reports with parent or clinician report, as well as observations of adolescents.

The current studies attempted to use multiple methods of gaining adolescent reports, however, to better describe self-injury and the correlates of self-injury. In addition to collecting survey data, adolescent participants' conceptualisations of self-injury and the behaviours constituted therein were gathered utilising an open-ended response format. As noted by Zaslow and Takanishi (1993), much of the existing research with adolescents fails to take the adolescent perspective into account. Discounting this perspective results in an incomplete or distorted portrayal of adolescents' experiences of self-injury, which may subsequently limit the effectiveness of prevention and intervention strategies (Laye-Gindhu & Schonert-Reichl, 2005).

A second limitation also relates to measurement issues. The distraction subscale in Study 1A (large university study) had a low interitem correlation ( $\alpha = .43$ ), and as such the results of Study 1A relating to distraction coping should be interpreted with caution. In addition, the measurement of daily hassles without the assessment of daily uplifts (i.e., positive experiences) may have produced a distorted conception of the hypothesised relationship between stress and self-injury (Kanner et al., 1981). An integral aspect of affect regulation is the maintenance of positive emotions. Future

research would benefit from considering uplifting experiences and examining how individuals who self-injury respond to these circumstances.

A third limitation is related to sample size, particularly the number of individuals who reported self-injury in the university sample and the difficulty identifying a large number of adolescents who self-injure and were seeking mental health services. Unfortunately these sample sizes posed restrictions on the analyses that could be conducted, such that the lowered power may have resulted in fewer identified correlates of self-injury than in other studies (e.g., Boudewyn & Liem, 1995; Briere & Gil, 1998; Evans et al., 2005; Garrison, Addy et al., 1993; Ross & Heath, 2003) and the reduced need to use multivariate predictive analyses. The small sample size and lower than desired power was compensated for, to some degree, by the use of nonparametric methods, but the independent contributions of each correlate of self-injury cannot be concluded from these study findings. Future studies using similar measures included here as well as multivariate analyses will be necessary to draw conclusions about maltreatment, neuroticism, affect, affect regulation, depression, coping and stress as joint and independent contributors to adolescent self-injury.

A fourth limitation is the inclusion of some self-injurers who had taken overdoses and who reported some elevated levels of suicidal ideation. The inclusion of individuals who had taken overdoses was done because adolescents reported they did this to self-injure, rather than to attempt suicide. Such issues plague the study of self-injury, making it confounded with suicidal ideation and attempts. This makes it even more important to gather data from adolescents about their reasons for their behaviours that harm the self, as was done in the current studies. Yet, it is possible that some self-injurers have ambivalent motivation. For example, the three university students with elevated suicidal ideation had self-injured on at least one occasion by taking tablet overdoses. Thus, whereas the intent of the act at the exact time of tablet overdoses was difficult to discern, it is possible that some adolescents may minimise the suicidal intent if directly questioned. Also, the majority of behaviours utilised by self-injurers to hurt themselves have low lethality, but this is simply not enough to assume lack of suicidal intent, particularly in consideration of Briere and Gil's (1998) speculation that some incidents of self-injury may actually be practices for attempting suicide.

Finally, some may consider the gender distributions in the current studies as a limitation given the major proportion of the sample were female participants across all studies. Whilst in the current university studies 50% and 80% of the self-injuring participants were female, previous research has ranged between 47% (Hawton et al.,

2002), to 100% (Rodriguez-Srednicki, 2001). In the current outpatient clinical samples 88% of the self-injuring participants were female. Similarly, in previous clinical samples of adolescent self-injurers females has constituted 80% (Healy et al., 2002) to 100% of the sample (Schwartz et al., 1989; Wiederman & Prior, 1996). Thus overall the distributions of gender in the current studies are similar to previous research studies, and highlight the general consensus that the majority of self-injurers identified in clinical settings are female, whereas in community and/or teaching settings the distribution for self-injury between male and female is more even.

#### *Further Implications for Theory and Research*

In addition to those described in previous sections, there are a number of other implications for theory and research that come from the study findings reported here. In relation to implications for theory, the current findings challenge the belief that once regarded self-injury as a behaviour that was closely associated with depression and anxiety. Possibly, self-injury is not actually less indicative of pathology, but it is more associated with risk factors for psychopathology, such as maltreatment and stress, especially for those individuals who are not seeking mental health intervention. The current research supports the view of blurred boundaries between normative struggles of adolescence and psychopathology previously discussed by Cicchetti and Rogasch (2002). For example, comparison of university students who self-injure to other university students showed that adolescents who self-injure have no more difficulties with depression and anxiety than others, on average, but they may have other risk factors for psychopathology, such as a history of emotional abuse and physical neglect, neuroticism, and more daily hassles.

Support for the affect regulation theory of self-injury (Allen, 1995; Brennum, 1984; Briere & Gil, 1998; Darce, 1990; Suyemoto, 1998; Yates, 2004) and the traumagenic model of self-injury (Yates, 2004) were found here, also. More specifically, although the findings were not consistent across all of the aspects of affect regulation measured here, adolescent self-injurers were found to have relatively more difficulties with identifying their feelings. In addition higher proportions of self-injurers reported histories of the traumatic childhood experience of maltreatment. These findings begin the much needed investigation of these theories using existing survey measures of affect regulation and highlight maltreatment experiences of commission (i.e., abuse) and omission (i.e., neglect) as correlates of later self-injury.

Future research should continue to use daily measurements or other forms of repeated measures in the study of self-injury. Ideally, daily processes would be measured as frequently and for as long in duration as possible. Yet, this may not always be possible, given the natural limits associated with participant burden and, perhaps, measurement reactivity (Affleck et al., 1999). Adolescents in the current clinical study appeared to have great difficulty completing even seven daily diaries. In general this resulted in the clinical participants completing diary forms for a shorter duration than has typically been used in diary studies (i.e., one month; Affleck et al., 1999; Armeli et al., 2000; Gil et al., 2001; van den Brink et al., 2001). It is important for researchers to determine innovative ways to retain adolescent participants, particularly those with mental health problems and significant levels of stress, during repeated measures study.

### *Implications for Clinical Practice*

The findings reported here have a number of implications for clinical practice. In particular, findings point to the need to focus on affect regulation, especially recognition of affect, adaptive coping strategies, and social support within clinical work with adolescents who self-injure.

It appears that a primary aspect of difficulty and distress for these adolescents' stems for the uncertainty regarding their feelings, and it is probable that this difficulty then results in young people self-injuring. Clinical practice should not make the assumption that adolescents are able to identify their feeling states, and instead intervention should focus on facilitating emotional awareness and understanding in adolescents. Much clinical intervention for self-injuring adolescents appears to focus on providing young people with a repertoire of alternative coping behaviours (e.g., Evans, 2000; Wood, Trainor, Rothwell, Moore, & Harrington, 2001) and the findings of the use of particular, sometimes less adaptive coping may support this type of intervention. However, clinicians may need to dedicate some time initially toward ensuring that young people who self-injure can actually identify when they feel distressed, what "normal" feelings are, and their different feelings states when confronting a range of environmental experiences. Linehan (1993)'s dialectic behaviour therapy intervention, which was developed for adults diagnosed with borderline personality disorder, specifically focuses on attention to feelings, developing distress tolerance and self-regulation techniques. A modification of Linehan's work could potentially be of much benefit for therapeutic intervention with adolescents who self-injure.

Affect regulation is the defining feature of all close relationships and the central goal of early primary relationships (Sroufe, 1997). Subsequently problems in affect regulation ability experienced by self-injuring adolescents may come from a history of less positive close relationships, and will likely impact on their quality, and even quantity, of interpersonal relationships. Since individuating from family is a primary developmental task during adolescence, as well as connecting and identifying with peer groups and establishing interpersonal intimacy (e.g., Baumeister & Leary, 1995; Sullivan, 1953), clinical psychologists may be able to increase motivation in self-injuring adolescents to reduce or cease this behaviour if they are able to engage them in reflection of the impact that the self-injury is likely to have on these interpersonal relationships both with peers and family. In view that some self-injuring participants utilised this behaviour to communicate emotions to others, participants often commenced self-injuring in the context of family difficulties, and given the importance of self-injuring adolescents perceptions of the social support received, it is also clinically important to focus on developing adolescents' skills in appropriately and successfully engaging in social interactions with others, identifying appropriate sources of social support, and developing skills at appropriately seeking assistance.

Clinicians may find it useful to assess the variety of different reasons that adolescents might describe for injuring themselves. These reasons could provide an initial set of dysfunctional thoughts and beliefs about self-injury, which potentially relate to core beliefs about the self, that would be beneficial to discuss with an adolescent and challenged in a therapeutic setting and relationship (Kumar et al., 2004). Psychotherapeutic techniques focused on providing possible alternates for perceptions of events may likely reduce the associated emotional distress and subsequent motivation for engaging in self-injury.

### *Future Directions*

The findings reported here suggest seven possible primary directions for future research. The seven directions suggested relate to: negative affect, affect regulation, impulsivity, examination of expectancy beliefs in relation to coping, examination of moderating and mediating processes in adolescent self-injury, possible multiple self-injury trajectories, and longitudinal diary studies.

Future research should continue to investigate the specific nature of the relationship between negative affect and self-injury. Previous research has linked negative affect with daily hassles after controlling for neuroticism (David et al., 1997).



Unfortunately similar types of analyses could not be conducted in this thesis, despite similar constructs being examined, due to insufficient sample sizes for powerful statistical analyses. Nonetheless, daily hassles, both frequency and stressfulness, was significantly correlated with negative affect in both the university and clinical adolescent samples.

The body of empirical literature on adolescent self-injury would greatly benefit from continued attempts to identify specific aspects of affect regulation difficulty that relate specifically to self-injury. Future research would benefit from additional research examination of the affect regulation theory of self-injury that involves a more thorough assessment of affect regulation, similar to Davies et al.'s (1998) assessment of emotion intelligence, which included both subjective and objective measures. An ability test of emotional intelligence, such as the Multifactor Emotional Intelligence Scale (Mayer et al., 1999) may be useful in future studies to provide more objective measurements in relation to self-injury. In addition, research has indicated that after periods of time where self-regulation is exercised, people appear less able to subsequently regulate themselves, even for a short time (Muravan, Tice, & Baumeister, 1998). It appears that self-regulation uses some resource that becomes depleted (Muravan et al., 1998). This will add to the development of effective psychotherapeutic treatment programs that address the real needs of this group of adolescents.

Impulsivity may be a component of self-regulation that would be important to assess in future studies. In general, impulsivity has been associated with self-injury (Favazza & Conterio, 1989; Garrison, Addy et al., 1993; Herpertz, Sass, & Favazza, 1997), especially among individuals with BPD (Simeon et al., 1992). Individuals who self-injure frequently engage in impulsive behaviours such as substance abuse, sexual promiscuity, and binge eating (Garrison, Addy et al., 1993; Herpertz et al., 1997; Schaffer, Carroll, & Abramowitz, 1982; Zlotnick et al., 1999). In one study (Zlotnick et al., 1996), female adult inpatients who self-injured reported higher levels of bingeing, driving recklessly, having unprotected sex, shoplifting, impulsive overdosing, and consuming large amounts of drugs or alcohol as compared to inpatients who did not self-injure. Also indicating impulsivity, the majority (78%) of females reported that the decision to self-injure was usually "made on the spur of the moment" (Favazza & Conterio, 1989; p. 286). The results suggest that at times self-injury may be impulsive and also related to other behaviours that are considered as impulsive.

An additional avenue for further self-injury research is examination of expectancy beliefs. In a study with university students, when the effects of expectancy

were statistically controlled, active coping was positively associated with dysphoria, which suggests that coping strategies may not be effective unless they are believed in (Kirsch, Mearns, & Catanzaro, 1990). It would be important for future research to assess the individuals' perception of the coping strategies expected effectiveness, and not just consequent perceived helpfulness, as this likely influences the coping strategies individuals actually use. This would also have important implications for clinical practice.

Theoretical models of the aetiology of developmental psychopathology have become more sophisticated and there is greater emphasis on moderating and mediating processes that influence or explain the relation between stressors and psychopathology across development (Cicchetti & Cohen, 1995). Identifying significant predictors of adolescent self-injury in both samples will be relevant for further development of intervention and prevention research at different levels (e.g., within clinical settings and within school, university or community settings). The results of the current study provide a challenge for clinical psychologists in that differing variables appear associated with self-injury dependent on the setting, which ultimately causes a challenge and emphasises the need for flexibility in clinical practice.

Future research would benefit from a longitudinal research design to continue exploring coping in relation to self-injury. Recent research has highlighted that some coping strategies may be associated with positive outcomes in the short term yet may appear ineffective when longer-term outcomes are considered (DeLongis & Holtzman, 2005). For example, parents' use of interpersonal withdrawal to deal with family stressors was associated with lower levels of next-day tension with children (DeLongis & Preece, 2002), however in the 2-year follow-up study aggregated levels of interpersonal withdrawal during the early daily process phase was found to predict greater levels of parents' tension with children 2 years later (Preece & DeLongis, 2005).

The findings from the current thesis conflict with the view that self-injury may parallel other problem behaviours, which being during early adolescence, peak during mid- to late-adolescents, and then decline in adulthood (Briere & Gil, 1998; Favazza, 1999; Favazza & Conterio, 1989). Rather the results of the current thesis are most consistent with Whitlock et al.'s (2006) viewpoint that self-injury may follow two distinct patterns similar to the life course-persistent and adolescence-limited trajectories evidence in conduct behaviour (Moffitt, 1993). This is an important aspect of self-injury that requires additional empirical evidence.

Little is known about the effect of diary completion itself on participants' experience or responses (Bolger et al., 2003). It may be that participants in the current research program viewed the diary as a form of intervention and the very fact of having to report self-injury behaviour on a daily basis for one week resulted in its decrease, for that study week at least. Bolger et al. (2003) suggest maintaining contact with participants, in a personal yet non-intrusive manner, may assist with data collection. It is unclear as to whether or not the methodology used in the thesis's diary study was viewed as intrusive by the participants, which may have affected their responses.

### *Conclusions*

In conclusion, the findings presented here support an affect regulation theory of self-injury, and a traumagenic model confirming the importance of adolescents' affect regulation ability and maltreatment in the development of self-injury. Support was found for the specific affect regulation aspect of clarity of feelings having a unique relationship with self-injury. It is noteworthy that specific yet differing forms of maltreatment were identified as significant for the two samples of self-injurers. In addition what appears of more importance than actual events or coping behaviours utilised by individuals are the adolescents' perceptions of the stressfulness experienced from the events and the usefulness of the coping strategies used. These also relate to the person-related construct of neuroticism, which was also found to have a significant relationship with self-injury. The findings provide initial preliminary evidence that there may exist two trajectories to the development of self-injury in adolescents. There is much room and flexibility available in future research as the current body of empirical literature pertaining to adolescent self-injury is quite new and limited. The affect regulation theory of self-injury, traumagenic model, and broadly, developmental psychopathology, utilised in the current study provide useful frameworks for future research endeavours.

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APPENDIX A  
SELF-INJURY INTERVIEW PROTOCOL

ID #: \_\_\_\_\_

Date: \_\_\_\_\_

**SH QUESTIONS**

**On the first survey you completed you indicated that in the last month you ‘hurt yourself on purpose’ .....What did you mean by that?**

- 1) What was happening in your life when you first had thoughts or the urge to hurt yourself?
- 2) How old were you when you first thought or had the urge to hurt yourself?
- 3) How often do you have thoughts or urges to hurt yourself?
- 4) What was happening in your life when you first hurt yourself?
- 5) How old were you when you first hurt yourself?
- 6) What did you do to hurt yourself the first time?
- 7) Usually, what do you do to hurt yourself?
- 8) How often do you hurt yourself?
- 9) Do you think about hurting yourself before you do it? And if so, for how long?
- 10) Have you ever used alcohol or drugs prior to hurting yourself? If so, about how often does this occur?

- 11) Do you experience pain during the self-harm?
  - a) severe pain
  - b) moderate pain
  - c) a little pain
  - d) no pain
  
- 12) What are some reasons why you hurt yourself? (See questionnaire #B)

**In reference to the last time the adolescent hurt him-/her-self:**

- 13) How did you feel before you hurt yourself? (Use questionnaire #A if necessary)  
(Probe: Do you feel angry, sad, worried, etc...)
  
- 14) Can you take me through what you felt before you hurt yourself right up to when you hurt yourself?
  
- 15) How did you feel after you hurt yourself?
  
- 16) Did you do anything else before hurting yourself? (For example, did you talk with someone, cry, try to think about something else...)
  
- 17) Tell me what you did after you had hurt yourself?
  
- 18) Have you ever required medical intervention after hurting yourself?
  
- 19) Have you ever received counselling or therapy related to your self-injury or the thoughts or urge to self-injury?
  
- 20) Have you ever told anyone else about your thoughts or self-injury?
  
- 21) Do any of your friends injure themselves? Have you ever hurt yourself while a friend (or more) was present?

## QUESTIONNAIRE A

- 1) Rage
- 2) Sad
- 3) Lonely
- 4) Anxious
- 5) Annoyed
- 6) Tense
- 7) Alone
- 8) Other

## QUESTIONNAIRE B

1. To reduce tension
2. To punish myself for being bad in some way
3. To express my anger towards others
4. To stop feeling so overwhelmed
5. To feel concrete pain because the other pain is so overwhelming
6. To reduce the emotional pain
7. To feel less depressed
8. To hurt myself because I deserve it
9. To relax
10. To get out my frustrations
11. To make myself feel better about me
12. To release me from my worries
13. Other

APPENDIX B  
SELF-INJURY IDEATION PROTOCOL

ID #: \_\_\_\_\_

Date: \_\_\_\_\_

**SHI QUESTIONS**

**On the first survey you completed you indicated that in the last month you  
'thought about or felt like hurting yourself on purpose' .....**

**What did you mean by that?**

- 1) What was happening in your life when you first had thoughts or the urge to hurt yourself?
- 2) How old were you when you first thought or had the urge to hurt yourself?
- 3) How often do you have thoughts or feelings to hurt yourself?
- 4) Have you ever put these thoughts or feelings into action and hurt yourself on purpose? (IF NO, SKIP TO Q 20).
- 5) What was happening in your life when you first hurt yourself?
- 6) How old were you when you first hurt yourself?
- 7) What did you do to hurt yourself the first time?
- 8) Usually, what do you do to hurt yourself?
- 9) How often do you hurt yourself?
- 10) Do you think about hurting yourself before you do it? And if so, for how long?
- 11) Have you ever used alcohol or drugs prior to hurting yourself? If so, about how often does this occur?

12) Do you experience pain during the self-harm?

- a) severe pain
- b) moderate pain
- c) a little pain
- d) no pain

13) What are some reasons why you hurt yourself? (See questionnaire #B)

**In reference to the last time the adolescent hurt him-/her-self:**

14) How did you feel before you hurt yourself? (Use questionnaire #A if necessary)  
(Probe: Do they feel angry, sad, worried, etc...)

15) Can you take me through what you felt before you hurt yourself right up to when you hurt yourself?

16) How did you feel after you hurt yourself?

17) Did you do anything else before hurting yourself? (For example, did you talk with someone, cry, try to think about someone else...)

18) Tell me what you did after you had hurt yourself?

19) Have you ever required medical intervention after hurting yourself?

20) Have you ever received counselling or therapy related to your self-injury or the thoughts or urge to self-injury?

21) Have you ever told anyone else about your thoughts or self-injury?

22) Do any of your friends injure themselves? Have you ever hurt yourself while a friend (or more) was present?

QUESTIONNAIRE A

- 1) Rage
- 2) Sad
- 3) Lonely
- 4) Anxious
- 5) Annoyed
- 6) Tense
- 7) Alone
- 8) Other

QUESTIONNAIRE B

1. To reduce tension
2. To punish myself for being bad in some way
3. To express my anger towards others
4. To stop feeling so overwhelmed
5. To feel concrete pain because the other pain is so overwhelming
6. To reduce the emotional pain
7. To feel less depressed
8. To hurt myself because I deserve it
9. To relax
10. To get out my frustrations
11. To make myself feel better about me
12. To release me from my worries
13. Other

## APPENDIX C

## SELECTED CASE STUDIES OF UNIVERSITY SELF-INJURERS

## P1

P1 is an 18 years old female who first self-injured when she was 15 years old in the context of academic stress, peer victimisation, and self-expectations. On the first act of self-injury P1 scrapped her nails against her hand. P1 continues to self-injure approximately once every three months, and continues to scrape her skin with her nails, and induce vomiting at times. In addition P1 reported that she infrequently binges. P1 reported that she self-injures “to deal with my frustrations”. P1 denied alcohol consumption associated with her self-injury. P1 reported self-injuring “to deal with my frustrations”, and while she reported “a little relief” there was little change in P1’s self-reported feeling prior and after the self-injury act. P1 has received no counselling at all. P1 reported knowing two friends who hurt themselves; one burns herself with cigarettes and scrapes her arm, and the other friend scratches her arm and has disordered eating.

P1’s scores for positive and negative affect indicated elevated negative affect in the 24 hours prior to survey completion. Related, P1’s neuroticism score was elevated. P1’s elevated scores on all of the SCARED subscales indicate that she is an anxious person. P1’s score for the RADS illustrates a similarly elevated level of depression, however this was below the clinical cut-off score that requires follow-up. P1 also has elevated suicidal ideation, yet this was also below the clinical cut-off score. P1 reported utilising a range of different coping strategies. P1 most often engages in avoidant coping strategies (i.e., avoidant actions, and cognitive avoidance) despite finding these least helpful when they are utilised. Most often used by P1 to cope with difficulties are the following strategies: to ‘stay away from the problem’, ‘put it out of your mind’, ‘avoid it by going to my room’, and ‘wishful thinking’, however in general finds these strategies only ‘a little helpful’. P1’s scores on the Trait Meta Mood Scale indicated that although she attends to her feelings, she experiences difficulty first, with being able to identify specific emotions, and second, with regulating her emotions to maintain positive emotions and change negative emotions to positive ones. P1 indicated experiencing a high number of hassles as well as related high perceived stressfulness of the hassles. P1 reported having experienced three major life events; these were: family financial troubles, death in the family, and friend’s mental health problems. P1’s scores on the Childhood Trauma Questionnaire suggest she experienced emotional neglect whilst growing up, and her scores on the Psychological Control measures indicated she experiences a high degree of psychological control from both parents.

Collectively P1’s scores indicate that she experiences elevated emotions of anxiety and depression, and has difficulty understanding her emotive states and regulating her emotions. Furthermore in terms of coping in general P1 most often utilises avoidant strategies. P1 reports experiencing a high number of daily hassles yet has experienced a small number, only, of major life events. In addition P1 experienced some emotional neglect, and psychological control from both parents.



## P2

P2 is a female who is almost 18 years of age and who first hurt herself during the last years. She reports that she engaged in self-injury once every three months. P2 sometimes hits herself in the head in response to fights with her mother. P2 reported self-injuring in response to feeling frustrated as her mother “buys stuff we don’t need”. P2 reported self-injuring “to deal with my frustrations” and that she felt calmer after she had hurt herself, compared to her feelings prior to doing so. P2 has not engaged in counselling at all, and she was unaware if any of her friends hurt themselves.

P2 indicated experiencing slightly more positive affect than negative affect in the 24 hours prior to survey completion. P2’s scores on the PANAS indicated elevated negative affect, although her positive and negative affect scores were similar. P2 also had an elevated neuroticism score. Also P2’s scores for all aspects of anxiety were elevated, except for separation anxiety, which was not a concern for P2. Despite elevated depression and suicidal ideation scores these were below the clinical cut-off scores requiring follow-up. P2 indicated she engages in a range of coping strategies and most often engages in active coping (i.e., cognitive decision making, direct problem solving, seeking understanding, and positive cognitive restructuring), which she finds most helpful. P2 self-reported utilising a small range of coping behaviours. P2’s scores on the TMMS indicates she has average ability to attend to her emotions (and does not solely focus on emotions, or solely on other factors such as her thoughts), is generally able to determine her specific emotions, and adequately regulates her emotions. P2’s reporting of daily hassles was in the normal range. P2 reported experiencing five major life stressors, including her father’s health problems, family financial troubles, and a death in the family. P2’s scores on the CTQ suggest she experienced physical abuse and neglect, and emotional neglect during childhood, yet has experienced minimal psychological control from both parents.

In summary, P2 experiences elevated mood states both within the last 24 hours and over a longer duration, yet is generally able to coping in functional ways, and has adequate ability to make sense of and regulate her emotions.

## P3

P3 is a 17 year-old male who first self-injured when he was 14 years old. P3 reported he hurt himself more frequently in the past however he currently hurts himself approximately once a fortnight. The first time P3 hurt himself was after a break-up with a girlfriend; at the same time he was experiencing difficulties with his siblings and school assignments. Initially P3 hurt himself by hitting a brick wall however he now also scratches and pokes his arm with sharp objects. P3 reported that he engages in self-injury as it “releases stress”. P3 denied alcohol consumption associated with self-injury. P3 has never engaged in counselling for any mental health problem. P3 reported a small number of friends cut themselves with razors.

P3’s scores for positive and negative affect, neuroticism, anxiety, depression and suicidal ideation were within the normal range. P3’s scores on the TMMS indicate he devotes reduced attention to his feelings, and has difficulty terminating negative mood states and prolonging positive ones. Despite this, P3 reported clarity of his experience of emotions. P3 reported utilising only a small number of coping strategies. P3 most

often utilises distraction coping strategies (i.e., distracting actions, and physical release of emotions), which he finds most helpful for coping. P3 most often copes with difficult situations by utilising the following strategies: ‘play sport’, and ‘express feelings to a pet/toy’. P3 has a small limited range of coping strategies that he is able to utilise. He also reported engaging in self-injurious behaviour most of the time and found it helped ‘a lot’. P3 reported a small number of daily hassles that he did not experience as particularly stressful. P3 reported only two life stressors; that being parental separation and relationship difficulties. P3’s results on the CTQ indicate that he experienced sexual abuse whilst growing up, and likely also under-reported other types of maltreatment. P3 indicated that his father exerted more psychological control over him than his mother.

Overall, P3 appears to be well-functioning young man despite self-injuring. However his reduced focus on his emotions and use of distraction strategies to cope suggest that P3 may have difficulty tolerating certain feelings and may perceive he has minimal influence over his feelings.

#### P4

P4 is an 18 year-old male who first self-injured when he was 15 years old in response to relationship difficulties with his brother. P4 punches hard objects, such as a wall or the ground, “to deal with anger”. P4 also feels frustrated and angry with himself when playing rugby union and hits the ground with his fist. P4 hurts himself approximately once per week, and the frequency has not changed, nor has the method of self-injury. The frequency of P4’s self-injury may relate to the frequency of his rugby union games. P4 reported no planned alcohol consumption associated with self-injury, and reported experiencing ‘no pain’ at the time of self-injury yet ‘moderate’ pain afterwards. P4 reported he usually feels angry or worried prior to self-injury and feels more relaxed and calmer after he has hurt himself. P4 has never received counselling for any mental health issue. P4 reported a small number of friends hit objects.

P4’s reporting of positive and negative affect, neuroticism, attending to feelings, clarity of feelings, mood regulation, depression, and suicidal ideation were within the normal range. P4 had elevated scores for Social Anxiety and Generalised Anxiety. P4 reported utilising a large number of coping strategies, and most often utilised distraction strategies, which he found most helpful. P4 reported utilising a broad range of coping behaviours, thus appearing to try a number of behaviours to deal with stressful situations. P4 reported experiencing a large number of daily hassles and that he experienced a large amount of stress in relation to the hassles. P4 reported experiencing nine major life stressors, including: mother’s depression, parental separation, deaths in the family, sport’s injury, not getting along with a university lecturer, problems with the law due to having a fake identification, and a friend having an accident and subsequently becoming blind. P4 indicated that his mother exerted less psychological control than his father. P4 reported experiencing physical abuse whilst growing up, and his CTQ Denial subscale score suggests probable under-reporting of maltreatment.

In summary P4 generally presents as a well functioning, perhaps high achieving, yet anxious young man. He appears to experience a great amount of stress on a daily basis in relation to daily hassles, and has also experienced a number of major life events and subsequent stress. P4 appears to have good emotion regulation ability despite often utilising distraction coping strategies.

## P6

P6 is a 17 year-old female who first self-injured when 12 years old. P6 reported that at this time she had been getting into physical arguments with her father. Initially P6 was hurting herself “every couple of days” yet now hurts herself approximately once every three months. P6 first hurt herself by breaking a pen and cutting her arm. Other methods of self-injury used by P6 include punching her legs, punching brick walls, cutting herself with a knife, and burning herself with a lighter (“smilies”). P6 stated her self-injury related to “pain and punishment”. P6 reported consuming alcohol whilst self-injuring “if I didn’t want to feel as much pain”. Although P6 reported some positive effect on her mood after self-injury, she also reported feelings of “regret” and being “annoyed at myself” after self-injuring. P6 engaged in counselling with her high school counsellor for issues related to her father. P6 reported some of her friends also cut themselves but P6 stated clearly “only after they found I did it”.

P6 indicated experiencing elevated positive affect in the 24 hours prior to survey completion. P6’s scores for negative affect, neuroticism, anxiety, depression and psychological control by mother were in the normal range. P6 indicated that she devotes slightly less attention to her emotions, yet she interestingly is well able to terminate negative emotions and prolong positive ones. P6 reported elevated suicidal ideation, yet this was below the clinical cut-off score for follow-up. P6 utilises a small number of coping strategies, and most often sought social support, yet found distraction coping strategies as most helpful when utilised. P6 also frequently used some Seeking Understanding Coping strategies including ‘ask God to help me understand it’. P6’s report of daily hassles was in the average range, and she experiences minimal stress on a daily basis. P6 reported experiencing six major life stressors, namely: family financial troubles, death in the family, own health problems and subsequent hospitalisations, death of a friend, relationship break-up, and friendship difficulties. P6 experienced emotional abuse and neglect, and physical abuse whilst growing up. P6 indicated that her father exerted less psychological control over her than her mother (who’s psychological control was similar to the average).

In summary P6 appears to experience few emotional problems although she engages in a range of self-injurious behaviours and having a moderate level of suicidal ideation. P6 appears to have a large repertoire of coping strategies to draw upon. P6 reports she is well able to regulate her emotions, however it is of concern that P6 continues to hurt herself despite her belief she is well able to regulate her emotions (although it is likely that she utilises self-injury to assist with the regulation of her emotions).

## P7

P7 is an 18 year-old female who first hurt herself at the age of 13 years by “scarring” her ankle with a compass, and was in the context of her parents’ divorce and her father moving away. Other methods of self-injury utilised by P7 include ‘tree jumping’ (describing as jumping into a bush usually done with friends as a form of competition), digging her nails into her arms, and scarring other body parts with a compass. P7 previously self-injured once or twice a week, and now hurts herself usually once a month. P7 perceives her self-injury as less deep than it was previously, and she hurts herself less often as she has more people around her. P7 denied alcohol consumption related to her self-injury. P7 reported feeling “relieved” when self-injuring yet afterwards was “really angry with myself...I shouldn’t have done it”. P7 has engaged in

counselling a number of times, including her school counsellor when her parents separated, and anger management. P7 knew of a small number of friends who self-injure by cutting their wrist and another friend who punches a wall.

P7 experienced elevated positive and negative affect, panic disorder symptoms, generalised anxiety disorder, and suicidal ideation (however this was below the clinical cut-off). P7's report of depressive symptoms was in the normal range. No scores are available for the TMMS (emotion regulation) and neuroticism measures as they were not completed. P7 utilises a small number of coping strategies, and most often seeks social support yet finds distraction coping as most helpful (i.e., 'talk about feelings with a friend'). P7 reported a large number of daily hassles and subsequent elevated stress. P7 reported 10 major life events having occurred; including: mother's illness and hospitalisation, family financial troubles, parental separation and subsequent divorce, father's remarriage, death in the family, not getting along with a teacher, relationship break-up, and her own physical injury. P7 indicated that neither of her parents were psychologically controlling of her. P7 reported experiencing emotional abuse and neglect, physical abuse, and sexual abuse whilst growing up.

Overall, P7 appears to experience extremes in affect and as such may experience many fluctuations in her emotions. In addition P7 appears to experience a large amount of both daily hassles and major life events, and elevated perceived stressfulness of these events. P7 is an anxious individual who has somewhat elevated suicidal ideation even though she has depressive symptoms that are in the normal range; thus P7 appears to be presently having difficulty functioning well.

## P5

P5 is an 18 year-old male who first self-injured at the age of 12 years after a minor transgression resulted in his father's harsh physical discipline. P5's first incident of self-injury involved him cutting his wrist with a knife. Other methods P5 has used to hurt himself include lighter burns, which is often done with a friend as a competition to see how much each can tolerate. P5 reported that at other times he burns himself with a lighter when he is feeling bored. P5's self-injury was previously weekly, whereas it is now approximately once per month. P5 reported consuming alcohol prior to burning himself to assist him tolerating the pain. P5 reported feeling calm after self-injuring. P5 received counselling from the school counsellor both in primary and high schools. Apart from the friends who self-injure with P5 at times, P5 was unaware of any friends hurting themselves.

P5's scores for neuroticism, generalised anxiety, separation anxiety, social anxiety, and depression were within the normal ranges. P5 experienced elevated positive and negative affect in the 24 hours prior to survey completion. P5 indicated paying much attention to his emotions, and spending much time regulating his emotions, even though he has difficulty distinguishing specific feelings. P5 indicated elevated panic disorder symptoms and some anxiety regarding university. P5 also indicated elevated levels of suicidal ideation, however this was below the clinical cut-off for follow-up. P5 indicated utilising a relatively small range of coping strategies. He reported utilising 'talk about feelings with a friend' most frequently and found it helped 'a lot'. P5 utilises active coping strategies most often yet found seeking social support as most helpful when used. P5 indicated experiencing a large number of daily hassles and related significant stress. P5 reported experiencing 10 major life stressors; these included: mother

attempting suicide, parental separation and later divorce, deaths in the family, troubles with the law, and relationship difficulties. P5 reported experiencing emotional neglect and abuse, and physical neglect and abuse whilst growing up. P5 indicated his mother exerts significant psychological control over him whilst his father appears to grant P5 much autonomy.

In summary P5 elevated scores for both positive and negative affect suggest that he experiences much variation in his feelings during the day, and while he focuses much of his attention on his feelings and attempts to regulate his feelings, he expressed difficulty distinguishing between emotive states. P5 has experienced many stressful events, both on a daily basis and through major life events. Whilst P5 appears to experience a great deal of stress in relation to the daily hassles, he did not appear to respond with so much stress to the major life events.

APPENDIX D  
DIARY FORM

Code Number \_\_\_\_\_

Today's Date \_\_\_\_\_

Listed below are a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way today.	TICK IF YOU STILL FEEL THIS WAY NOW	Very slightly or not at all	A little	Moderately	Quite a bit	Very much
Sad		1	2	3	4	5
Frightened		1	2	3	4	5
Excited		1	2	3	4	5
Ashamed		1	2	3	4	5
Upset		1	2	3	4	5
Happy		1	2	3	4	5
Nervous		1	2	3	4	5
Guilty		1	2	3	4	5
Scared		1	2	3	4	5
Miserable		1	2	3	4	5
Cheerful		1	2	3	4	5
Active		1	2	3	4	5
Proud		1	2	3	4	5
Afraid		1	2	3	4	5
Joyful		1	2	3	4	5
Lonely		1	2	3	4	5
Mad		1	2	3	4	5
Disgusted		1	2	3	4	5
Delighted		1	2	3	4	5
Blue		1	2	3	4	5
Gloomy		1	2	3	4	5
Lively		1	2	3	4	5
Other (specify):		1	2	3	4	5

People have to deal with a number of different things each day. For the items below please indicate if they happened and, if so, circle the level of stress you experienced.	DID NOT HAPPEN	IT HAPPENED....					TICK IF THIS IS A NEW HASSLE TODAY
		Not at all stressful	A little stressful	Moderately stressful	Quite a bit stressful	Very stressful	
Performed poorly at a task	0	1	2	3	4	5	
Competed with someone	0	1	2	3	4	5	
Interrupted during task/activity	0	1	2	3	4	5	
Was excluded/ignored by others	0	1	2	3	4	5	
My classmates teased me	0	1	2	3	4	5	
Someone tried to pick on me or push me around	0	1	2	3	4	5	
Unable to finish a task	0	1	2	3	4	5	
Criticised or verbally attacked	0	1	2	3	4	5	
Had to answer a question in class or speak in front of people	0	1	2	3	4	5	
Someone broke a promise	0	1	2	3	4	5	
Did something you did not want to do	0	1	2	3	4	5	
Felt pressured to do well	0	1	2	3	4	5	
Was stared at	0	1	2	3	4	5	
Did not hear from someone I had expected to hear from	0	1	2	3	4	5	
Was misunderstood	0	1	2	3	4	5	
Heard some bad news	0	1	2	3	4	5	
Was embarrassed	0	1	2	3	4	5	
Had an argument with friend	0	1	2	3	4	5	
Had an argument with a parent/sibling (specify)	0	1	2	3	4	5	
Had an argument with someone else (specify)	0	1	2	3	4	5	
Didn't feel well	0	1	2	3	4	5	
Exposed to feared situation or object	0	1	2	3	4	5	
Had difficulty understanding something	0	1	2	3	4	5	
Other (please specify)	0	1	2	3	4	5	

Refer back to the previous question. Please circle the most difficult hassle for today. Then in the space below describe what you did about it.

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<p><b>When people have problems or feel upset about things, they may do different things to solve the problem or to make themselves feel better. <u>In reference to the items above that you stated happened today...</u> For each item below, choose the answer that BEST describes how often TODAY you did this to solve these problems or make yourself feel better. There are no right or wrong answers, just indicate how often you did each thing in order to solve your problems or make yourself feel better during the day. Then for each thing used sometimes, often, or most of the time, indicate how effective you think it was (in other words, did it help you to solve the problem or feel better?).</b></p>	HOW OFTEN DID YOU DO THIS?				DID IT HELP?			
	Never	Sometimes	Often	Most of the time	Not at all	A little	Some	A lot
Think about which things are best to do to handle the problem.	1	2	3	4	1	2	3	4
Think about what I need to know so I can solve the problem.	1	2	3	4	1	2	3	4
Do something to make things better.	1	2	3	4	1	2	3	4
Do something to solve the problem.	1	2	3	4	1	2	3	4
Think about why it has happened.	1	2	3	4	1	2	3	4
Ask God to help me understand it.	1	2	3	4	1	2	3	4
Try to figure out why things like this happen.	1	2	3	4	1	2	3	4
Try to notice or think about only the good things in life.	1	2	3	4	1	2	3	4
Remind myself that things could be worse.	1	2	3	4	1	2	3	4
Tell myself it's not worth getting upset about.	1	2	3	4	1	2	3	4
Cry by myself.	1	2	3	4	1	2	3	4
Write my feelings down.	1	2	3	4	1	2	3	4
Let out feelings to my pet or stuffed animal.	1	2	3	4	1	2	3	4
Play sport. (Specify)	1	2	3	4	1	2	3	4
Do some exercise. (Specify)	1	2	3	4	1	2	3	4
Listen to music.	1	2	3	4	1	2	3	4
Go walking.	1	2	3	4	1	2	3	4
Read a book or magazine.	1	2	3	4	1	2	3	4
Watch TV.	1	2	3	4	1	2	3	4
Try to stay away from the problem.	1	2	3	4	1	2	3	4
Try to stay away from things that make me feel upset.	1	2	3	4	1	2	3	4
Avoid it by going to my room.	1	2	3	4	1	2	3	4
Try to put it out of my mind.	1	2	3	4	1	2	3	4
Wish that things were better.	1	2	3	4	1	2	3	4
Figure out what I can do by talking with one of my friends.	1	2	3	4	1	2	3	4
Think about or feel like hurting myself on purpose.	1	2	3	4	1	2	3	4
Try to solve the problem by talking with my mother/father.	1	2	3	4	1	2	3	4
Talk about how I am feeling with my mother/father.	1	2	3	4	1	2	3	4
Talk with one of my friends about my feelings.	1	2	3	4	1	2	3	4
Hurt myself on purpose (specify).	1	2	3	4	1	2	3	4
Imagine how I'd like things to be.	1	2	3	4	1	2	3	4
Do something like video games or a hobby.	1	2	3	4	1	2	3	4
Other: (specify)	1	2	3	4	1	2	3	4

Did anything happen today that made you feel good? For example, invited to a party, talked on the telephone, watched a TV show you enjoy? Please describe these enjoyable events...

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