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**Self-harm, Emotion Regulation, Body Image and
Timing of Puberty in Clinical and Non-Clinical
Adolescent Populations**

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Doctorate in Clinical Psychology

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2006



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DECLARATION

This thesis has been composed by myself and the work contained herein is my own

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ABSTRACT

Objectives

Adolescence is a time of accelerated change, both physical and cognitive. The timing of puberty has been linked to the onset of depressive illness and poor self-concept, with increased vulnerability for females (linked to body weight) if they develop early and males if they develop late (linked to height) (Stattin & Magnusson, 1990).

Research shows body image is a salient element of self-esteem, with adolescents relying heavily on physical characteristics, rather than intellectual or social aspects, to define themselves (Harter, 1990). This marked change in physical appearance, along with adolescent egocentrism, whereby young people find it difficult to differentiate between their own preoccupations and other's perceptions of them, may cause significant distress.

The UK has one of the highest rates of self-harm in Europe (Horrocks, 2002), with adolescent females being most at risk (Hawton, 1992). However, the most significant increase in recent years has been seen within the adolescent male population (Nordentoft, Breum, Munck, et al., 1993), with a 194% increase between 1985 and 1995 in males aged 15–24 (Hawton, Fagg, Simkin et al, 1997). Risk of suicide is greatly increased in self-harming populations, with studies showing that approximately one out of every 100 individuals admitted to hospital for self-harm will complete suicide within a year (Hawton, 1992).

The present study aimed to explore the motivations that lead adolescents to engage in deliberate self-harm. It also sought to examine the relationship between body image, emotion regulation, timing of puberty and deliberate self-harm in a clinical (i.e. adolescents in contact with mental health professionals) and non-clinical adolescent populations.

This research study could therefore offer insight into rates of self-harm and the motivations for such acts, as well as exploring the links between self-harm and emotion regulation, body image and pubertal timing. This knowledge is valuable in providing a greater psychological understanding of this client group, assessing the need for awareness in community samples, and treating individuals presenting to services with self-harm.

Design

The research design employed was a cross-sectional survey of the two identified populations, using both standardised and non-standardised questionnaires. The design utilised both between and within subject measures to examine the relationships across a number of different variables.

Method

218 participants took part in the study. 21 were from a clinical population and 197 were recruited through local schools. Data were collected using questionnaire measures (Hospital Anxiety and Depression Scale; Body Dysmorphic Disorder Questionnaire; Emotion Regulation Questionnaire; Self-Harm Innovatory; Self-Injury Motivation Scale –II).

Results

Results found significantly higher levels of psychopathology, body image concern and dysfunctional emotion regulation strategies in those who self-harmed. Rates were higher among the clinical self-harm group than among the non-clinical self-harm group. In addition, worry about body image, being bullied and utilising dysfunctional emotion regulation strategies were found to be better predictors of self-harm than the other variables considered. Timing of puberty was not found to correlate significantly with self-harm. No differences were found in motivations for self-harm between clinical and non-clinical populations.

Conclusion

Results supported previous findings that body image is a risk factor for self-harm, that those with higher levels of psychopathology are more likely to harm, and that dysfunctional emotion regulation strategies are correlated with self-harm. The study concluded that further research was required to adequately assess differences in motivation to harm between clinical and non-clinical populations.

Lack of service provision and methodological constraints carrying out research with adolescent clinical populations were highlighted. The need for increased awareness of self-harm and the benefits of psycho-education, particularly in schools, was discussed.

CHAPTER 1: INTRODUCTION

Adolescence is a time of accelerated change, characterised by physical and cognitive changes, role transitions, developing self-concept and the drive for autonomy and individuation. Adolescence has been defined as the “*transitional period between the protected and dependent status of childhood and the independence and freedom of adulthood*” (Hendry, Shucksmith, Love & Glendinning, 1993, p4).

During adolescence, key tasks are developing a new self-image (based on physical changes), developing peer relationships and making use of more logical thinking. As individuals move through adolescence, they become more concerned with separating emotionally from their parents or caregivers. Often the adolescent achieves this by testing boundaries and attacking rules set for them by others, as they strive to establish their own values. Intellectually, adolescents are developing a consistent view of the world they live in and their place in it. They become more aware of other’s needs rather than seeking self-gratification as seen in younger children, and are becoming aware of their own responsibilities.

It is clear then, that the developing adolescent must encounter a number of transitions. Should concurrent stressful life events occur during this period, the adolescent may be at danger of developing mental ill health and utilising maladaptive coping strategies such as dysfunctional emotion regulation and self-injurious behaviours.

The following chapters aim to explore current knowledge on adolescent development and salient features of this, including pubertal changes, body image development, and emotion regulation and self-harm in adolescents.

CHAPTER 2: ADOLESCENCE

Adolescence and Cognitive Changes

Piaget (1932) stated that children progress through four stages of cognitive development, with each representing a qualitative change in reasoning and problem solving ability. Between birth and two years children are in the sensorimotor stage, from the age of approximately two until seven they are in the preoperational stage, and between seven and ten years they display evidence of concrete operational thinking.

During the sensorimotor stage, knowledge of the world is based on the infant's experiences with the environment and their intellect develops through mobility and interaction. At around seven months of age, infants gain object permanence, signifying the emergence of logic (Gruber, Howard, & Vaneche, 1977), and by the end of this stage language development is emerging.

The preoperational stage sees the child developing symbolic functioning by using words and symbols to represent something not physically observable. They can only focus on one aspect of a situation, known as centration, and display egocentrism whereby they cannot see another's point of view. At this stage, conservation is not yet achieved. This ability to understand that the arrangement of an object does not

change its quantity, length or number does not develop until the concrete operational stage.

During the concrete operational stage the child is able to solve problems by addressing multiple aspects of it. They understand not only the principles of conservation but also of reversibility and serialisation, where objects or numbers can be changed and returned to their original state (e.g. 2 plus 2 equals 4 but if subtract 2 returns to original state) and can be arranged in ascending or descending order of shape, size, appearance etc. Children in the concrete operational stage can think in a more systematic and quantitative manner. Their reasoning processes become logical and they acquire what Flavell, Miller & Miller (1993) describe as systems of internal mental actions that underlie logical thinking, or as Piaget called them 'operations'.

Children in this stage are perhaps most importantly able to carry out tasks of conservation, such as being aware that the same amount of liquid is in two carriers of a different size. They are able to come to such a conclusion through the use of logical reasoning and can explain their rationale. During the concrete operational stage, children move away from the egocentrism seen in the pre-operational stage and can place themselves in the position of others, developing theory of mind (Piaget, 1932; Mitchell, 1997).

The formal operational stage, which takes place at the beginning of adolescence (between roughly 11 and 15 years), is the final stage of cognitive development in

Piaget's theory. During this stage, which extends throughout adulthood, the ability to think abstractly is developed and adolescents begin to test out hypotheses in a scientific and logical manner. Furthermore, the ability to think about emotions and feelings, and communicate these to others, is developed. The individual can understand concepts such as love and guilt, and begin to develop their own moral values.

Although Piaget's work has been extensively criticised, mainly due to the clear distinction between stages, which have been argued not to exist (Sutherland, 1992), it does highlight that there is a qualitative change in ability rather than simply an increase of cognitive skills around the time of puberty (Coleman & Hendry, 1999). This is highlighted in the changes described between the concrete and formal operational stages. The timing of the formal operational stage correlates roughly with the timing of puberty and allows the adolescent to think in terms of what might be possible rather than what is concrete and real.

It has also been suggested that Piaget was optimistic in stating that all adolescents would reach formal thought, with numerous studies reaching a general consensus that less than 30% of 16 year olds reach this stage (Shayer & Wylam, 1978; Coleman & Hendry, 1999; Muuss, 1996). However, Keating (1990) proposed that individuals could display evidence of reaching the formal operational stage if the content is related to social or interpersonal relationships, rather than the more abstract problems used in scientific experiments. Ward & Overton (1990) suggest that if adolescents have no interest in the material used, or if it holds no personal significance, although

they may have the ability to display formal thought, their performance will not match their standard of competence. They showed that 70% of students were able to demonstrate formal reasoning when the information related to being at school, while only 30% showed the same reasoning skills when presented with material relating to retirement.

Steinberg (1990) criticised Piaget's theory for only being concerned with logical reasoning and not taking into account a number of other processes that develop in adolescence. Steinberg's (1988) theory has been labelled a componential approach as it details specific components of intellect that develop in adolescence. These developments (seen in attention, memory, processing speed and organisational skills) enable older adolescents to not only plan more effectively, but also allow them to evaluate their own abilities.

Elkind (1967) built on the ideas proposed by Piaget, in particular the notion of reasoning and egocentrism. Piaget stated that as a child progresses through the developmental stages and into adolescence, they lose the egocentrism seen in earlier stages. Elkind, however, argued that adolescents develop a different kind of egocentrism, whereby they can cognise the thoughts of others, but fail to differentiate between the focus of these thoughts the object of their own concern. An example given of this is that an adolescent obsessed with the way they look will assume that others share this opinion. Elkind stated, *"it is this belief that others are preoccupied with his appearance and behavior that constitutes the egocentrism of the adolescent"* (Elkind, 1967, p1030).

This theory suggests that adolescents believe there is an 'imaginary audience' which leads to the false assumption that their appearance, beliefs or behaviours are the focus of other people's attention. Elkind proposed that during social situations, adolescents anticipate the reactions of others, based on the belief that they are as admiring or as critical of the adolescent as they are of themselves. It will follow then that a self-critical adolescent will perceive others to be equally critical towards them. Elkind believed that this 'imaginary audience' results in the self-consciousness common in adolescence and can lead individuals to elevate their importance to others. This can result in a sense of uniqueness and the creation of a 'personal fable', which has been likened to a myth involving the individual's beliefs and fantasies about themselves.

There is some debate as to whether the self-consciousness often observed in adolescences is a product of egocentrism, or rather is due to real, rather than imagined, scrutiny (Vartanian, 2000). Additionally, Elkind's (1967) theory has been criticised for having methodological weaknesses (Bell & Bromnick, 2003) with subsequent studies failing to find a relationship between formal operations and the imaginary audience (Jahnke & Blanchard-Fields, 1993; Lapsley et al., 1986).

Gender differences and the higher rates of egocentrism observed in female adolescents suggest that this indeed may be more of a social construct rather than a function of cognitive development, as females are often subjected to greater scrutiny over their appearance (Ryan & Kuczkowski, 1994). Although Elkind (1967) believed the basis of this egocentrism develops from early formal operations, and diminishes when formal thought is achieved, there has been some debate that it is instead the product of interpersonal understanding (Jahnke & Blanchard-Fields, 1993).

Selman (1980) looked at social interactions and the way children and adolescents develop an understanding of other people. Role taking, perspective taking, empathy, moral reasoning, interpersonal problem solving and self-knowledge are all aspects of social cognition. Selman (1980) saw the development of social cognition as developing through stages, starting at around five to nine years of age when children begin to realise that others have separate social perspectives from themselves. From the ages of approximately seven to twelve, he proposed that the emergence of self-reflective thinking allows the child to not only realise that someone else might have a different perspective, but also to that other people can take the child's perspective into consideration, or 'put themselves in someone else's shoes'. From the ages of ten to fifteen, the individual is able to see a more general third-person perspective and look simultaneously at the relationship between their point of view and another's. From the age of fifteen onwards this further develops into what Selman called in-depth societal perspective taking, where the social perspectives of society, the individual and the group are understood at a more abstract level. Selman stated that the development of perspective taking impacts not only on the individual, but also on relationships with peers, relationships with parents, and their ability to make friends.

Summary

In summary, the cognitive changes that take place during adolescence allow the developing individual to acquire logical and abstract reasoning. However, along with this also comes an increased awareness of oneself and a preoccupation with others' perceptions. In order to fully assess the impact of these changes, it is first necessary

to evaluate the theories of adolescence and how children transpose and manage developmental tasks.

Theories of Adolescence

Many theories of adolescence have been proposed and to detail each one is beyond the scope of this discussion. However, the most influential of these, and those most relevant to the current research, will be outlined.

Erikson's life stage theory

Erikson (1959) developed one of the most influential theories of identity and claimed that individuals proceed through eight stages of development, beginning at birth and ending with death. Erikson viewed adolescence as a single stage from the ages of eleven to twenty one, in which the central conflict is identity versus role confusion.

Erikson felt that if this conflict was successfully resolved the individual would be able to progress to the next stage of development. However, if identity confusion was not resolved, the adolescent might encounter an inability to separate from their parents and establish a separate identity. As a result they would struggle to develop ego identity, group identity with peers and may have doubts regarding their sexual identity.

Although influential, Erikson's theory has been criticised for grouping the vast number of tasks involved in adolescence into one developmental stage (Newman & Newman, 1987).

Transition theories

Along with the cognitive changes adolescence brings, the individual also has to successfully manage a number of developmental tasks. These include physical maturation, emotional development, the establishment of peer relations and the development of sexual relations (Newman & Newman, 1987).

Negotiating these tasks has traditionally been conceptualised as the transition from childhood to adulthood (Coleman & Hendry, 1999). However, it is now more widely accepted that adolescence is not just one simple transition, but rather contains a number of transitions which are influenced by additional factors such as education, employment and living circumstances (Coleman & Roker, 1998).

Transitions are said to involve anticipation of the future, regret for the stage passed, feelings of anxiety about the future, psychological adjustment to the current stage and ambiguity of status during the transition (Graber & Brooks-Gunn, 1996).

Both Jones (1995) and Coles (1995) are in agreement that there are three main transitions in status into adulthood. These are the transition from school to work, the

transition in which the individual becomes independent from caregivers and the physical move away from the family home.

An alternative is proposed by Graber & Brooks-Gunn (1996), who state that rather than go through separate transitions during adolescence, there is one single transition which involves many 'turning points' or 'key challenges', such as the move from school to work or university. They state that the transition to adulthood can become problematic if either the timing of the key challenge causes additional stress (e.g. it occurs at the same time as early puberty), a mental health problem is also present, or there is a lack of 'goodness of fit' between the resources of the individual and the social context of the transition. Additionally, they recognise that the occurrence of other stressful life events during transitions might impact the adolescent's ability to cope with them, as well as acknowledging that some individuals might be more sensitive to change than others.

Focal theory

Graber & Brooks-Gunn's (1996) theory that adolescents encounter different key challenges fits well with Coleman's (1974) focal theory. This theory of adolescence is one of the most influential models of adolescent development and proposes that adolescence is made up of phases during which different relationships come into focus.

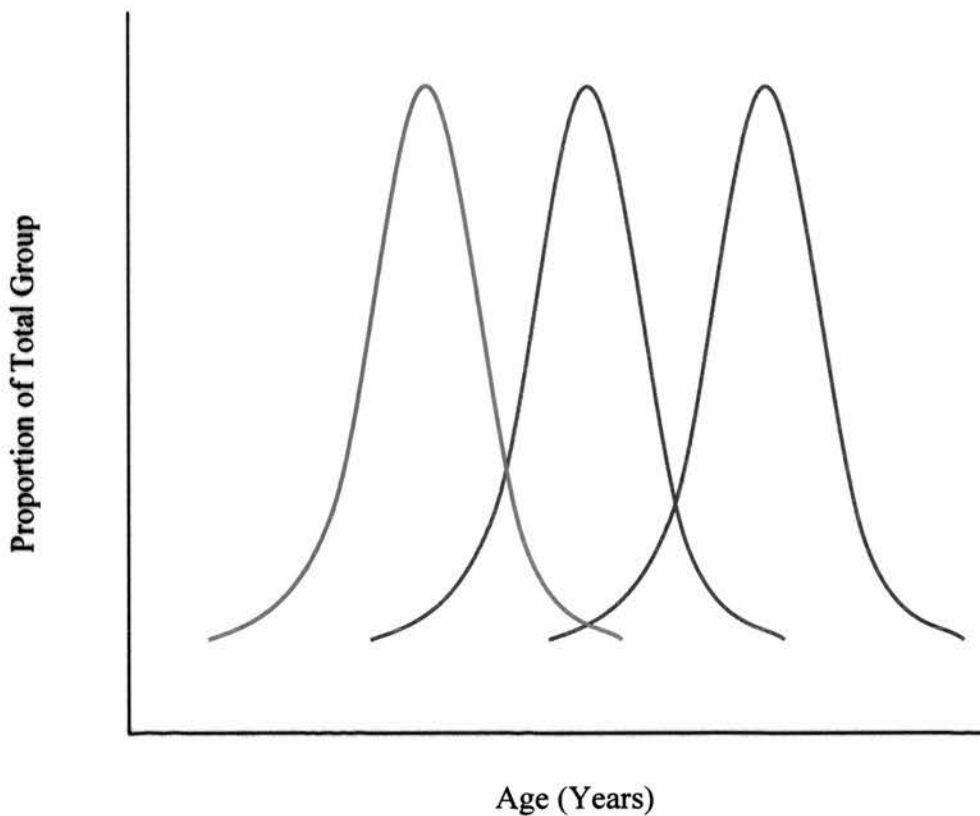
Coleman surveyed adolescents' attitudes and opinions on a range of issues relating to relationships, including friendships, sexual relationships, parental relationships and self-image. He found not only that attitudes changed as a function of age, but also that different sorts of relationships were more salient at specific stages of adolescence. Although such a finding seems to indicate a stage theory of adolescence, Coleman (1974) was keen to point out that his focal theory portrayed a more flexible model of adolescence. This means that there is no fixed sequence for focal points, the resolution of one is not required to move on to another and phases are not linked to developmental stage (see Figure 1).

Perhaps most importantly, Coleman (1974) stated that focal points would only prove problematic if more than one key transition occurred at once, or additional life stressors were present. Such a claim in the literature was seminal, as up until this point the fact that most youngsters successfully managed the demands of adolescence was not acknowledged, possibly due to the earlier reports that adolescence was a time of 'storm and stress' (Hall, 1904).

Coleman's model suggests that as long as adolescents deal with one issue at a time, they are likely to adapt successfully to the demands of the focal issue. Furthermore, the focal model does not simply imply that there is a cumulative effect of stress related to the number of ongoing life events, but rather states that by attempting to deal with one issue at a time the individual is an active agent in the transition of development.

Although the focal model has been criticised, mainly because it was based on cross-sectional data rather than the longitudinal data required to enable adequate validation (Jackson & Bosma, 1992), it is yet to be replaced by a more substantive model (Coleman & Roker, 1998), and continues to receive empirical support. Simmons and Blyth (1987) found that adolescents coping with more than one focal issue were likely

Figure 1. Coleman's (1974) Focal Theory of Adolescence (Each curve represents a different relationship or focal issue).



to have lower self-esteem and poorer academic performance than their peers, while other studies have supported the notion that issues are dealt with one at a time and that different issues are more salient at different ages (Kloep, 1998; Kroger, 1985; Goossens & Marcoen, 1999).

Summary

Adolescents can be said to go through a number of transitional tasks, or focal points, in their development and in general cope well with the demands placed on them. However, during times of particular difficulties, for example, interpersonal or socioeconomic stress, these transitions may become problematic. If the adolescent is unable to deal with one issue at a time they become vulnerable to psychopathology (Coleman & Hendry, 1999). A number of factors, including the level of cognitive development achieved and concerns regarding the physical changes taking place during adolescence, and the effect this has on the development of positive body image, will impact the adolescent's ability to negotiate these changes. It has been suggested that the timing of puberty can act as a particular stressor during adolescence if timing does not correspond with that of peers, occurring earlier or later than desired. In order to fully explore this, the effects of puberty on the developing adolescent will be discussed subsequently.

CHAPTER 3: PUBERTY

Definition of Puberty

The word puberty is a derivative of the Latin word *pubertas*, meaning arriving at the age of manhood. Puberty has been described as *“the time at which the onset of sexual maturity occurs and the reproductive organs become functional. This is manifested in both sexes by the appearance of secondary sexual characteristics (e.g. deepening of the voice in boys; growth of the breasts in girls) and in girls by the start of menstruation. These changes are brought about by an increase in sex hormone activity due to stimulation of the ovaries and testes by pituitary hormones”* (Oxford Medical Dictionary, 1996).

Physical Changes in Puberty

It has been claimed that as each decade in the 20th century passed, puberty started approximately one month earlier (Winn & Roker, 1995). Although some authors have argued that this is not the case (Leffert & Peterson, 1995), many believe that at least some aspects are indeed occurring earlier (Hermann-Giddens, Slora, Wasserman et al, 1997). This secular trend has been attributed to improved health care and nutrition.

Research has shown puberty to last longer than would have been acceptable 10 or 20 years ago, with young people delaying entry into the labour market and remaining under parental care for longer (Coleman & Hendry, 1999).

Puberty is generally considered to begin with menstruation in females and the growth of pubic hair in males. Along with sexual maturation, individuals also undergo changes in the cardio-vascular system, the lungs and muscle size and strength.

There is a pattern of developmental change which occurs in all adolescents, with height spurts, menarche, breast growth and pubic hair growth occurring in females and height spurts, penis elongation, testes development and pubic hair growth occurring in males (Tanner, 1973). However, the age at which an individual enters these stages varies. For example, growth spurts in males can begin as early as nine years, or as late as fifteen years.

In males who are relatively short for their age, their slow maturation may become obvious to themselves and their peers. Similarly, girls tend to enter their growth spurt earlier than boys (Tanner, 1978), which means that an early maturing female will stand out due to her elevated height and 'puppy fat' (Silbereisen & Kracke, 1997).

Psychological Implications of Puberty

Along with physical changes, there are psychological implications of the lengthened range of puberty, where adolescents can mature significantly earlier or later than was previously seen.

A number of disorders, including depression, anxiety, eating disorders and substance use disorders have been found to increase in adolescence (Kaltiala-Heino, Marttunen, Rantanen & Pimpela, 2003), with approximately 15% of adolescents meeting diagnostic criteria for such disorders (Newman, Moffitt, Caspi, Magdol, Silva & Stanton, 1996).

It is generally agreed that it is the stage of pubertal development, not the chronological age of the individual, that acts as a risk factor for psychopathology (Koff & Rierdan, 1993; Angold, Costello & Worthman, 1998; Hayward, Killen, Wilson, Hammer, Litt et al., 1997).

Although the relationship between early puberty and mental health problems is robust, and it seems likely that early puberty may trigger such problems, it cannot be ruled out that pre-existing mental health problems might trigger early puberty. It may also be that concurrent stressors, such as parental marriage breakdown, may impact both the timing of puberty and the development of certain disorders, or that the relationship

between all three is reciprocal (Kaltiala-Heino et al., 2003; Graber, Brooks-Gunn & Warren, 1995).

Petersen & Crockett (1985) and Alsaker (1996) suggest that adolescents who physically develop earlier or later than their peers may suffer adjustment problems due to their being socially deviant. This deviancy hypothesis predicts that early maturing girls and late maturing boys are most at risk of negative consequences, as visually they differ the most in status from their peers.

It must be noted, however, that an individual's social context also plays an important role in the way puberty is perceived. For example, Brooks-Gunn & Warren (1985) found that in female adolescent dance students, being an early or on time developer resulted in a higher prevalence of poor body image and eating disorders. While non-dance students may find commencing puberty on time to be reassuring, for those in a particular social context, such as being a dancer where low body weight is more advantageous, this is not the case.

Simmons and Blyth (1987) reported that adolescents are more likely to have a positive body image if they believe they fall into a culturally acceptable level of 'thinness' and do not concurrently experience environmental (e.g. moving school) or physical changes, such as early or late puberty. They also found that the consequences of being out of time with peers in terms of pubertal development were more negative for girls than boys.

The timing of puberty has been linked to the onset of depressive illness and poor self-concept, with increased vulnerability for females (linked to body weight) if they develop early and males if they develop late (linked to height) (Stattin & Magnusson, 1990). In addition, studies have found that early maturing females where menarche occurs before 12.5 years of age may be especially vulnerable to a decline in self-esteem (Ge, Conger, and Elder, 1996).

Early maturing adolescent girls have been found to display more dissatisfaction with themselves, report more psychosomatic symptoms and display increased levels of conduct disorder (Alsaker, 1992; Silbereisen & Kracke, 1997; Stattin & Magnusson, 1990 & Brooks-Gunn et al., 1989).

Studies have found that early maturing females are also less popular and may experience peer rejection (Silbereisen et al., 1989). This, in turn, may reinforce feelings that physically they do not 'fit in' with others, which can not only impact on self-esteem, but may also serve to reduce peer networks and the availability of social support, an important buffer against mental illness (Skegg, 2005).

Moore (1995) and Coleman (1995) both found that females displayed embarrassment, discomfort and anxiety regarding early menstruation. Similarly, studies involving adolescent boys have found that feeling unprepared for events such as their first ejaculation can lead to confusion and embarrassment. Conversely, those who did feel prepared had a more positive attitude towards themselves (Stien & Reiser, 1994).

There is some evidence that in such situations, girls may seek out older peers, perhaps due to their similar appearance in terms of pubertal development. Lackovic-Grgin, Dekovic & Opacic (1994) state that such friendships can prove problematic as they can encourage inappropriate sexual behaviour for the stage of maturation. Ge et al. (1996) stated that girls who enter puberty early, and begin to associate with older adolescents at a similar pubertal stage, may face difficulties as they have not yet completed the stage appropriate developmental tasks or created a robust sense of self.

Kaltiala-Heino et al. (2003) suggest that those adolescents who mature later have more time to adjust to the idea of puberty as well as developing psychologically and academically before having to face the pressures of puberty. However, this does not explain the reported negative effects of late puberty in adolescent boys.

Clearly then, the impact of pubertal timing can have wide reaching implications for the individual. While most may adapt with ease to their physical changes, others who are also experiencing concurrent or simultaneous stressors may find themselves struggling to maintain a positive self-image. The literature shows that body image is a particularly salient aspect of self-concept (Levine & Smolak, 2002), and is hugely affected by the physical changes brought on by puberty.

CHAPTER 4: BODY IMAGE IN ADOLESCENCE

Introduction and Definition

Research has shown that adolescents rely heavily on physical rather than intellectual or social aspects characteristics to define themselves (Harter, 1990). The marked change in physical appearance associated with puberty, along with adolescent egocentrism, whereby the young person finds it difficult to differentiate between their own preoccupations and other's perceptions of them, may cause significant distress.

Body image has been described as the "*picture of our own body which we form in our mind*" (Schilder, 1950, *p11*). In other words, the way in which the body appears to the individual (Bruch, 1973).

Body image it is said to develop in infancy when the child learns to recognise itself as something unique and constant in its environment. However, more recent research suggests that body image is more complex than simply being a minds eye picture of oneself, and rather is a multidimensional phenomenon (Pruzinsky & Cash, 2002).

This complexity has been attributed in part to the varying definitions and terminologies used to define body image which are often used interchangeably (Thompson, Heinberg, Altabe & Tantleff-Dunne, 1999), including body satisfaction,

body dysphoria, body perception and body schema to name a few (Pruzinsky & Cash, 2002).

Additionally, although there are many theoretical positions on body image, little clinical research has been carried out to support these (Fisher, 1990).

Theories of Body Image

Psychodynamic models

Psychodynamic models of body image see it as a dynamic mental representation of the body self (the combined sensations, functions and images of the body) which is constantly evolving (Krueger, 2002). These representations are formed through early infant experiences, parental mirroring and reciprocation, and a growing awareness of boundaries to the body and internal states. All these experiences are then integrated to form a coherent sense of the self.

Although in early body image studies (pre- 1990's) this perspective was popular, lack of empirical research and the increasing popularity of other theories (e.g. cognitive theories) have led to it being criticized and becoming less popular (Pruzinsky & Cash, 2002).

Socio-cultural models

Socio-cultural theories of body image argue that cultures in which certain physical features are valued will lead to individuals in that culture valuing these characteristics in themselves and others. For example, a society which places heavy emphasis on the importance of women being thin will predispose individuals in that society to judge themselves and others by this criterion.

Research has found that possessing attractive attributes can lead to preferential treatment, as well as others being more likely to label the individual as being in possession of certain unassociated positive traits, such as being more socially competent, more academically competent and better adjusted (Eagly, Ashmore, Makhijani & Longo, 1991; Langlois, Kalakanis, Rubenstien, Larson, Hallam & Smoot, 2000).

Although it appears that cultural expectations of attractiveness can influence the social desirability of an individual, there are still weaknesses with this theory. Research has found that across cultures there are certain characteristics that are universally found to be attractive, suggesting that these standards are not necessarily defined by individual cultural standards (Jackson, 2002).

Additionally, African American girls, who generally have higher body mass index (BMI) scores and tend to enter puberty earlier than Caucasian girls, have less

dissatisfaction with their bodies (Smolak, 2002) despite living in the same culture and experiencing the added risk factor of early maturation, although it could be argued that whilst living in the same society as Caucasian girls, African American girls are more influenced by an ethnically defined culture.

Cognitive models

Cognitive and information processing models of body image have been proposed mainly in relation to eating disorders. These models suggest that negative body image is the result of a cognitive bias (such as an attentional bias, a memory bias or inaccurate body size/shape estimations) which are not seen as being incorrect or erroneous by the individual.

Schemas based on past memories about body image are activated by relevant stimuli, which then bias interpretations (for example, in the case of anorexia, food may act as a stimulus to trigger a self-schema of fatness, regardless of actual body size). Studies have suggested that people who possess certain characteristics, such as fear of fatness, perfectionism and an internalization of a perfect body size or shape, are more likely to have cognitive biases about body image (Williamson, Stewart, White & York-Crowe, 2002).

Cognitive models of body image postulate that negative emotions arise from negative cognitions as a result of cognitive biases, but do not fully explore the role of emotions in triggering and maintaining negative body image.

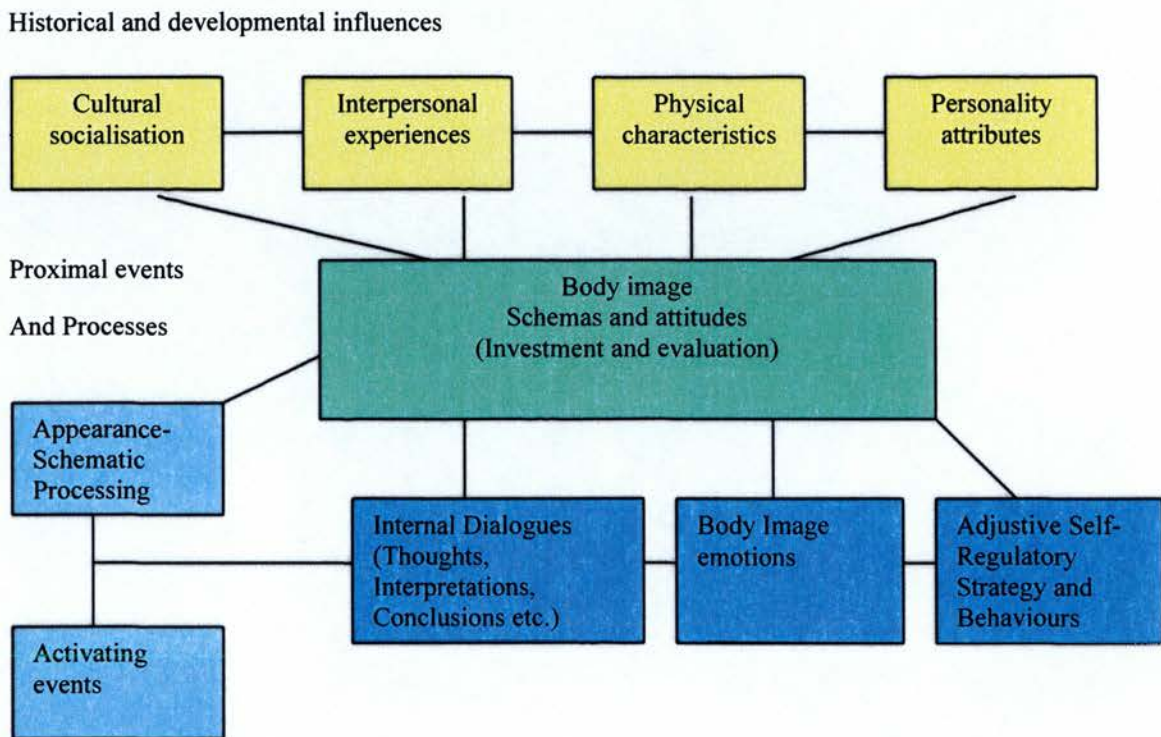
Cognitive behavioural models

Cognitive behavioural theories of body image have tried to reconcile shortcomings of the cognitive model by emphasising the role of both past and current events and experiences in the formation of body image (including social learning, interpersonal relationships and other experiences that shape and maintain the way an individual views themselves) along with the impact of emotions, behaviours and environmental stimuli.

Figure 2 shows how historical and developmental influences combine with proximal events and processes to influence schemas, which can be activated by environmental cues and influence an individual's thoughts, emotions and behaviours (Cash, 2002).

Schemas are seen as influencing, and being influenced by, the level of investment in appearance and the individual's evaluation of their appearance. The model shown in Figure 2 does not contain arrows of causality as there is thought to be triadic reciprocal causation between environmental, behavioural and personal factors such as affect and cognition (Cash, 2002).

Figure 2. Cognitive Behavioural Model of Body Image (Cash, 2002).



Development of Body Image

The development of body image has clear roots in childhood and adolescence and has been found to be correlated with eating disorders and self-harm. Although there is little research exploring the causality of such relationships or longitudinal research into body image (Smolak, 2002) there are clear trends in the development of body image concerns.

In females, a steady decrease has been found in positive body image concurrent with increased concerns regarding weight immediately following puberty (Field, Camargo, Taylor, Berkey, Frazier, Gilman & Colditz, 1999).

It has been suggested that as individuals move through adolescence and begin to think more abstractly, they begin to see themselves more as a conceptual object with feelings at the core rather than a perceptual object based on observable traits (Owens, 1995). As such, adolescents begin to start thinking about themselves as separate entities from their bodies.

Teenagers are likely to have idealised norms regarding body image and may be likely to suffer negative feelings if they do not meet these criteria (Alsaker, 1996). Harter (1990) found that body image is of more concern to females than males and is a more salient component of their self-concept.

As children reach adolescence and their bodies begin to change, it is natural that negative feelings about body image may lead to anxiety and unhappiness. Owens (1995) states that girls with negative body image are more likely to worry that they are not 'normal', have lower problem solving ability and a lower sense of personal efficacy than girls without body image concerns.

Adolescents may judge their self-worth by how they perceive others see them. If they have poor body image, then it is likely they will believe others see them in the same negative way and thus may experience low self-esteem and poor self-confidence.

The heightened awareness of body image during adolescence may be due to the individual feeling they look different due to appearing more advanced physically than their peers. As previously mentioned, the onset of puberty has been occurring earlier and earlier in the past century.

Many adolescent females may view their bodies negatively due to the changing shape and distribution of fat that takes place during puberty. During puberty females gain an average of 20-30 pounds of fat, which is mostly stored in the hips, waist, thighs and buttocks areas (Levine & Smolak, 2002). This sudden increase in weight can suddenly move girls away from the culturally idealised body shape and size which they may have previously held. Girls who mature earlier than their peers have been found to view their bodies significantly more negatively at the time of menarche than others of the same age (Silbereisen, Peterson, Albrecht, & Kracke, 1989).

Adolescent girls have been found to be most dissatisfied with their weight, while boys are more concerned with height (Stattin & Magnusson, 1990). This is not surprising considering that these are likely to be the most obvious physical indicators of an individual's stage in puberty. In addition, adolescents at this stage of development have not yet begun to use their intellectual and social selves as a means of defining

themselves and rely heavily on physical characteristics (Harter, 1990; Abell & Richards, 1996).

Influences on Body Image

Strength of belief

The strength of an individual's belief that body shape and size is important is correlated to body dissatisfaction (Thompson et al., 1999).

Adolescent girls are more likely to be dissatisfied with their body image if they consider magazines and media advertisements depicting an idealised body size or shape as being an important source of information (Levine & Smolak, 2002) and consequently use this information as a basis for their beliefs about body image and attractiveness.

Familial factors

Familial factors, such as parental attitudes and beliefs regarding body image can impact on developing adolescents if these attitudes result in negative comments and criticism (Levine & Smolak, 2002).

Social learning theory suggests that parents will influence their offspring's attitudes towards body image levels of attractiveness. Techniques such as instruction, modelling and feedback will all shape the way a child mentally represents itself. Fisher (1986) found that parents are likely to project how they would like their children to look along with opinions on how they actually look.

Should the child not meet the parent's idealised look or expectations then there may be implications for the development of a positive body image. Spitzack (1990) controversially claimed that "*mothers criticise and fathers complement*" (pp.83) although subsequent studies have failed to replicate this finding.

In a study looking at adolescent body weight, Levinson, Powell & Steelman (1986) found that parental views were a more powerful predictor of the adolescent's perception of their weight than the opinion of a general practitioner or other demographic variables.

Peer influences

Obviously then, familial influences on the development of body image are crucial. However, perhaps because of the increased drive for individuation during adolescence and increased reliance on social and peer groups to provide a sense of identity, the opinions of peers, particularly in females, are also powerful influences on body satisfaction.

Rosen, Orosan-Weine & Tang (1997) found interpersonal factors such as feedback from others regarding appearance and peer competition accounted for approximately 50 % of critical experiences pertaining to body image.

Research has further found that girls in close friendships have similar body ideals and levels of satisfaction, and that critical comments from peers, particularly if from boys, are correlated to negative body image in adolescent females (Thompson et al., 1999).

Adolescent girls tend to be evaluated more positively if they are seen as being attractive compared to less attractive girls (Langlois & Stephan, 1981). Being overweight is commonly cited as a perceived reason for both male and females being bullied (Whitehead & Hoover, 2006).

However, it has been suggested that being teased by peers regarding appearance may not actually impact directly on body image and may rather exacerbate existing insecurities even if not directly associated (e.g. a comment about the face may lead to increased worries about a certain part of it, such as the nose, if already conscious of it) (Tantleff-Dunn & Gokee, 2002).

Social comparison

Social comparison theory may go some way to explaining why some individuals develop a negative body image while others of a similar size or shape do not.

Frequently comparing oneself to others who are viewed as more attractive will be less positively rewarding than if being comparing with individuals rated as less attractive. However, there is some suggestion that it may be the number of comparisons, rather than who the object of comparison is, that is crucial (Cattarin, Thompson, Thomas & Williams, 2000).

Interpersonal relationships

As individuals move through adolescence, most also experience their first romantic and sexual experiences. Research has found these relationships can have a significant impact on body image, particularly if the relationship is of poor quality (Tantleff-Dunn & Thompson, 1995). Additionally, a significant discrepancy has been found between female perception of sexual partners' ideal body image, and partners' ratings, particularly in relation to the breasts (Tantleff-Dunn & Thompson, 1995).

It must also be noted that poor body image can have a negative impact on relationships, leading to fewer sexual experiences, less satisfaction with sexual

experiences and avoidance of such situations (Wiederman, 2002). As such there is a reciprocal relationship between body image and sexual relationships.

Gender Differences in Body Image

As mentioned, females have been found to have much higher rates of body dissatisfaction than males, and this difference is especially true in adolescence (Levine & Smolak, 2002).

Feingold & Mazella (1998) conducted a meta-analysis which highlighted a significant increase in body dissatisfaction between the 1970's and the 1990's in females as compared to males, with the greatest increase being in adolescent girls.

Body Image and Psychopathology

Distorted body image is now recognized as a risk factor for suicide and self-harm in adolescents (Walsh & Rosen, 1988; Orbach, Stein, Shani-Sela & Har-Even, 2001).

The absence of self-preservation seen in these individuals is said to result from their lack of positive self-image, lack of bodily self-love and the absence of a drive to protect their body (Orbach, 1996).

Although some adolescents may simply be more sensitive to the bodily changes triggered by puberty, external life events (such as abuse) can also result in an altered body image.

Evidence has shown childhood sexual abuse to have both long- and short-term consequences for self-esteem and body image (Fallan & Ackard, 2002).

Previously adaptive body responses may be replaced by body hate, body rejection, sense of lack of control and perceived loss of bodily boundaries in such situations (Orbach, Stein, Shani-Sela & Har-Even, 2001).

It is also suggested that such experiences may lead to the individual being less sensitive to pain, with self-harm becoming a way of facilitating a relief from numbness (Orbach, 1996), or that they distance themselves through dissociation and detachment from the body.

Body image has been described as possibly the most salient component of an adolescent's sense of global self-esteem (Levine & Smolak, 2002). Negative affect has been shown to correlate with negative body image, with this correlation being greater in females (Siegel, Yancey, Aneshensel & Schuler, 1999). Poor body image has been found to correlate with psychiatric disorders such as depression and anxiety and to be related to self-harm (Kostanski & Gullone, 1998), although further research into the psychological impact of negative body image is still lacking (Davidson & McCabe, 2005).

CHAPTER 5: EMOTION REGULATION IN ADOLESCENCE

Emotion Regulation – Definition

Emotion regulation has been defined as the processes by which individuals experience and express both positive and negative emotions (Thompson, 1994; Bridges & Grolnick, 1995; Kopp, 1989). These processes are said to include the recognition, monitoring, evaluation, and modification of emotions (Phillips & Power, in press).

Adaptive, or functional, emotion regulation strategies allow individuals to experience strong emotions without becoming overwhelmed, and express these emotions in a socially acceptable manner.

It has been suggested that adolescents who self-harm have poorer coping strategies than their peers (Evans, Hawton & Rodham, 2005). Coping strategies can be conceptualised as either problem-focused or emotion-focused (Lazarus & Folkman, 1984), with problem focused-coping being associated with a higher degree of perceived personal control (Compas, 1987).

Unsurprisingly, emotion-focused coping has been found to correlate with disengagement from the problem situation, avoidance and increased distress (Carver & Scheier, 1993) and is more likely to be employed by adolescents who self-harm (Evans et al, 2005; Kingsbury, Hawton, Steinhardt & James, 1999) than those who do not.

Coping is closely related to emotion regulation, and has received much more attention in the literature. However, emotion regulation differs from coping in that it does not evaluate these strategies only in the face of particular challenges or difficulties (Compas, Conner, Thomsen, Salzman, & Wadsworth, 1999), and does not include non-emotional problem solving strategies (Gross, 1999).

Poor coping and using emotion focused strategies has been linked to poor affect regulation, in particular using strategies such as dissociation (which enables avoidance), withdrawal and avoidance of negative emotions. Passive and avoidant coping strategies have been found to be associated with depression and a tendency to engage less in active problem solving, support seeking and cognitive restructuring (McCauley, Pavlidis, & Kendall, 2001).

Key requirements for functional coping are an internal working model of relationships based on secure attachment and the capacity to empathise with others (Fabes, Eisenberg, Karbon, Troyer & Switzer, 1994). If these are not available, then the individual may use maladaptive coping strategies, such as dissociation, in response to emotions that are felt to be overwhelming.

Self-harm may be used to end this dissociative state (Allen, 1995), possibly through the shock of the individual seeing blood (Simpson, 1980), to instigate it (Himber, 1994) or by replacing emotional pain with physical pain (Simpson, 1980).

It has been suggested that individuals have tendencies towards the type of emotion regulation strategies they are most likely to employ (Phillips & Power, in press),

although this is situationally and subjectively dependent (i.e. the same response may be adaptive in one situation but not another). A distinction between adaptive and dysfunctional strategies (Garnefski, Kraaij & Spinhoven, 2001) has allowed researchers to look for correlations between different styles of coping and other variables such as psychopathology.

Emotion regulation strategies can be further classified as either internal or external and as functional or dysfunctional (Phillips & Power, in press).

Functional-internal strategies differ from functional-external ones in that they involve the individual altering something within themselves to regulate the emotion (for example re-evaluating their goals), as opposed to an external method (for example seeking advice of others).

Dysfunctional strategies involve either the internal avoidance of the emotion, such as using self-harm to distract from the emotion (internal) or the rejection of the information triggering the emotion, such as physical or verbal violence (external).

See Table 1 for examples of emotion regulation strategies based on those identified by Phillips & Power (in press).

Table 1. Emotion Regulation Strategies

	Internal	External
Functional	Positive reappraisal. Goal modification. Planning. Putting things into perspective. Concentration.	Sharing emotions and expressing feelings. Advice seeking. Seeking physical contact. Exercising.
Dysfunctional	Self-harm. Rumination. Negative social comparison. Repression. De-realisation.	Bullying. Physical assault. Verbal assault. Lashing out at object. Eliciting negative emotions in others.

Emotion Regulation and Psychopathology

Emotion regulation strategies can maintain, enhance, subdue, or inhibit emotions while the individual attempts to accomplish goals (Denham, 1998). For example the adaptive regulation of anxiety in the face of a feared situation will allow for exposure, a reduction in anxiety, and the accomplishment of the goal, rather than avoidance which leads to increased anxiety and escape from the situation.

The functional regulation of emotion is therefore crucial as it maintains an appropriate level of arousal, allows access to more adaptive and appropriate responses, and enhances ongoing perceptual processes (Kostiuk & Fouts, 2002).

An individual who is unable to effectively regulate emotions is at risk of being incapable of functioning at an adaptive or appropriate level due to the mis-identification and subsequent mis-direction of emotions (Kostiuk & Fouts, 2002).

Emotional development and the ability to effectively regulate emotions is related to healthy psychological functioning (Cicchetti, Ackerman & Izard, 1995), especially in young people (Southam-Gerow & Kendall, 2002).

Gross (1999) suggested that a high percentage of psychiatric diagnoses, as defined in the Diagnostic and Statistical Manual of Psychiatric Disorders (DSM-IV; APA, 1994), are strongly linked to emotion regulation, although research looking into emotion regulation and specific disorders is currently limited.

In a study examining the relationship between emotion regulation and depressive symptoms, Silk, Steinberg & Morris (2003) found that adolescents who reported more depressive symptoms were less likely to effectively manage their emotions and were more likely to engage in strategies such as disengagement and rumination.

Emotion regulation will be further discussed in relation to self-harm in Chapter 6.

CHAPTER 6: SELF-HARM IN ADOLESCENCE

Self-harm – Introduction and Definition

Despite a growing number of studies in the area of self-harm, literature continues to be limited. Research is heavily biased towards deliberate self-poisoning rather than behaviours such as cutting or burning, which therefore cannot be generalised to all individuals who self-harm (NHS Centre for Reviews and Dissemination, 1998).

The majority of research focuses on an inpatient population or those who seek medical advice. An estimated 33% of self-harmers do not come to the attention of medical services (Ray, 2005).

Low rates of referral and high drop out rates mean many self-harmers will never be seen by a mental health professional. Therefore, a subgroup exists of non-clinical adolescents engaging in self-harm who do not meet criteria for a psychiatric disorder, or who are not in contact with mental health services.

The majority of people who self-harm are single females who first come to the attention of services in adolescence (Darche, 1990; Walsh & Rosen, 1988), with the average age of onset now documented to be as low as 12 years old in the UK (MHF, 2006). Since the 1980's there has been an increase of approximately 30% in individuals presenting with self-injury (Hawton et al, 2000), and this figure is not taking into account those who do not seek professional help.



In recent years the subject of deliberate self-harm has become increasingly topical, with national strategies being developed across the UK. In Scotland, The Scottish Executive published a report of its 'Choose Life' initiative in 2002, which comprises a national strategy and action plan for the prevention and treatment of deliberate self-harm.

This increase in awareness and clinical research into self-harm means it is now being recognised as a major concern, especially within the adolescent population.

'Truth Hurts', a report by the Mental Health Foundation (MHF, 2006), has highlighted the need for further research in the area of self-harm, and states that there is a widespread misunderstanding of self-harm by both professionals and the individuals who engage in it. Further, it highlights the need for increased knowledge and understanding by both families and professionals in dealing with individuals who harm themselves.

Catherine McLoughlin, Chair of the Truth Hurts inquiry, stated that *"It is vital that everyone who comes into contact with young people has a basic understanding of what self-harm is, why people do it, and how to respond appropriately. At the very least they should avoid being judgmental towards young people who disclose self-harm, should treat them with care and respect and should acknowledge the emotional distress they are experiencing."* (MHF, 2006, p.3).

The term 'deliberate self-harm' proves difficult to define as it encompasses a vast number of behaviours, ranging from acts with suicidal intent to activities such as

smoking and overeating. Other terms used to describe self-harm include pathological self-mutilation, self-injury, deliberate self-harm, parasuicide, self-inflicted violence, delicate cutting, self-abuse and self-injurious behaviour (Skegg, 2005; Suyemoto, 1998). For the purpose of this study, the terms self-harm and self-injurious behaviour will be used to encompass the above terms.

Lack of consensus in the existing literature as to what constitutes self-harm makes generalising results problematic (Suyemoto, 1998). Some studies include suicidal attempts as examples of self-harm (e.g. Brittlebank, Cole, Hassanyeah, Kenny, Simpson & Scott, 1990), while others include acts of 'grave self-inflicted harm' (Suyemoto, 1998) such as self castration (e.g. Moffaert, 1989).

Research has found that 90% of young people presenting to hospital with self-harm will have taken an overdose and the remaining 10% will be largely made up of self-cutters (Hawton, 1989; Hurry & Storey, 1998). If acts with suicidal intent are not included in a definition of self-harm, the most common form of self-harm is cited as being self-cutting (Favazza & Conterio, 1988; Simpson, 1980).

As a result of such findings, many researchers have restricted their sample of people who self-harm to those who cut themselves, and it has even been suggested that there may be a separate syndrome specifically for those who self-cut (Doctors, 1981). The literature on self-cutting and self-poisoning vastly outweighs that of other forms of self-injurious behaviour.

It has been proposed that a definition of self-harm should not only take into account the seriousness and frequency of the behaviour, but also how socially acceptable it is, the level of directness involved, and the intent of the individual (Suyemoto, 1998).

In reviewing the literature, Suyemoto (1998) claims that for a behaviour to be considered as 'self-harm' it must lead to direct injury, ruling out behaviours resulting in indirect harm such as drinking and driving. Furthermore, as self-harm is not a socially acceptable action, this definition differentiates such behaviours from other, more acceptable, forms of body mutilation such as tattoos and body piercing (Favazza, 1989; Simpson, 1980).

Individuals who engage in self-harm may do so due to cognitive impairment. Autistic children are known to carry out stereotyped, repetitive behaviours which may result in injury. However, it is believed that these behaviours differ from self-harm in the absence of a deliberate intent to harm (Favazza & Rosenthal, 1990) and as such they are not included in the definition of self-harm used in this study.

Self-harm is also differentiated from more serious mutilation such as castration and eye enucleation which are not repetitive behaviours and are most often associated with psychosis (Favazza & Rosenthal, 1990; Simpson, 1980). It is also distinct from suicidal intent, with various studies showing patients' perceptions and intent differ in self-harm compared to those who attempt suicidal acts (Doctors, 1981; Firestone & Seiden, 1990).

In summary then, for the purpose of this study, self-harm is defined as any behaviour of which there are a number of episodes resulting in a degree of bodily damage. The individual carrying out the self-harm is likely to be in a psychologically disturbed state but the motivation to harm is not suicidal intent. The result of self-harm is mild to moderate bodily harm, not major self-mutilation. The individual carrying out the action is not cognitively impaired, does so with intent and harms themselves directly. Finally, the behaviours are seen as socially unacceptable. This definition does not include eating disorders, substance abuse or smoking as self-injurious behaviours, although the acts of taking an overdose or drinking to excess with the intention of harm will be included.

Prevalence of Self-Harm

Estimations of the incidence and lifetime prevalence of self-harm are difficult to determine. Depending on the definition used, studies have been found to be over inclusive, for example including acts with suicidal intent, or under inclusive, for example only including one method of harming such as self-cutting (Walsh & Rosen, 1988).

As many studies utilise inpatient populations, it is possible that prevalence figures are biased when reporting the severity and frequency of self-harm. It is now recognised that self-harm is more common in community samples than previously believed.

De Leo & Heller (2004) found that 6.2% of school pupils in Australia had carried out some form of self-injurious behaviour within the previous year, with only

approximately 10% attending hospital. 6.9% of non-clinical school pupils in England reported an act of self-harm within the past year, with only 12.6% receiving hospital attention (Hawton, Rodham, Evans & Weatherall, 2002). Ross & Heath (2002) found that 13.9% of all students in a community sample reported engaging in self-harm at some point.

Rates of self-harm are higher in the psychiatrically ill and those with neurological or developmental impairments (Osuch, Noll & Putnam 1999). Additionally, rates are elevated in prison populations (Hillbrand, Young & Krystal, 1996). In both inpatient and community samples, self-harm is often a secretive act and many individuals who self-harm will never come into contact with specialist services or will fail to disclose such behaviour when asked (Suyemoto, 1998).

De Leo & Heller (2004) state that those who do seek help are more likely to turn to friends or family than mental health professionals or voluntary agencies. Males, in particular, are less likely to seek help from professionals (Souter & Kraemer, 2004).

Despite this uncertainty as to exact rates, it is clear that the incidence of self-harm has increased in the past 50 years, with the lifetime prevalence for people treated for self-harm as inpatients or outpatient estimated as 3% for women and 2% for men (Schmidtke, Bille-Brahe & DeLeo et al., 1996). The female to male ratio of individuals who self-harm is approximately 1.6:1 (Horrocks & House, 2002).

Rates of self-harm rose in the late 1960's to the early 1970's and appeared to decrease in the early 1980's. However, since the early 1990's they have again continued to

rise, especially in adolescent non-clinical populations (Horrocks, 2002). The incidence of self-harm is greater in psychiatric populations (Doctors, 1981), with incident rates as high as 61% being recorded in adolescent inpatient populations (DiClemente, Ponton & Hartley, 1991) as compared an incidence of self-harm for adolescents in the general population of 1%.

The UK has among the highest rates of self-harm in Europe (Horrocks, 2002), with adolescent females being most at risk (Hawton, 1992). However, the most significant increase in recent years has been seen within the adolescent male population (Nordentoft et al., 1993), with a 194% increase in prevalence between 1985 and 1995 in males aged 15-24 (Hawton et al, 1997).

Risk of suicide is greatly increased in self-harming populations, with studies showing that approximately one out of every 100 individuals admitted to hospital for self-harm will complete suicide within a year (Hawton, 1992).

Associated Diagnoses

There is no specific diagnosis of self-harm in the Diagnostic Statistical Manual of Psychiatric Disorders (DSM-IV; APA, 2004) or the International Classification of Diseases (ICD-10; WHO, 1992). However, self-harm is mainly associated with other disorders such as mood disorders, dissociative disorders or personality disorders (Kumar, Pepe & Steer, 2004).

Self-harm is often seen as an early indicator of personality disorder (Dulit, Fyer, Leon, Brodsky & Frances, 1994).

Acts of self-harm are included in the diagnostic criteria for borderline personality disorder under “*recurrent suicidal behaviour, gestures, or threats, or self-mutilating behaviour*” in the DSM-IV (APA, 2004) and as ‘*a liability to become involved in intense and unstable relationships may cause repeated emotional crises and may be associated with excessive efforts to avoid abandonment and a series of suicidal threats or acts of self-harm (although these may occur without obvious precipitants)*’ in the ICD-10 (WHO, 1992). As such, borderline personality disorder is the diagnosis most often associated with self-harm (Herpertz, 1995; Stone, 1987).

Major depression is common amongst adolescents who self-harm, particularly those who overdose (Kerfoot, Dyer, Harrington, Woodham & Harrington, 1996). Other disorders associated with self-harm are obsessive-compulsive disorder, alcoholism, substance-abuse, eating disorders, schizophrenia, post traumatic stress disorder, dissociative identity disorder, psychosis, Munchausen’s Syndrome, anxiety disorders and adjustment disorders (Brittlebank et al, 1990; Darche, 1990; Favazza, DeRosear & Conterio, 1989; McAllister, 2003).

It has been suggested that because of the well-documented association between self-injurious behaviours and borderline personality disorder, there may be a bias to diagnose this when presented with an individual who has self-harmed (Ghaziuddin et al., 1992). Furthermore, it has been argued that a separate diagnosis of self-harm as

an impulse disorder, similar to that of eating disorders, should exist (Favazza & Rosenthal, 1993; Simeon & Favazza, 2001).

Associated Symptoms

There is a robust finding in self-harm research that a connection exists between childhood abuse (both sexual and physical) and self-harm (Evans, Hawton & Rodham, 2005).

Literature on self-harming adolescents suggests that they are not only more likely to have a history of abuse, but are also more likely to come from families with high levels of deprivation and divorce, or from those where there is a lack of parental warmth (Simpson, 1980; Rosen et al, 1990).

Across ages and gender, deliberate self-harm has been robustly linked to depression (Shaffer, Gould, Fisher & Trautman, 1996), with levels of hopelessness differentiating adolescents who self-harm and those who attempt suicide (Evans, Hawton & Rodham, 2005). The presence of depression in adolescents aged 17-18 has been shown to increase the risk of suicidal ideation and self-injurious behaviour in later life (Fergusson, Horwood, Ridder & Beautrais, 2005).

In female adolescents, self-harm has also has been linked to poor body image, eating disorders and antisocial behaviour (Evans, Hawton & Rodham, 2005), while in males associations have been found with impulsivity and irritability (Conner, Meldrum,

Wieczok, Duberstein & Welt, 2004). There is also some evidence to suggest that sexual orientation is a risk factor for suicidal ideation and self-injurious behaviour (Beerman & Moody, 2004).

Coping style has been linked to self-harm and suicidal behaviour, particularly if dissociation is utilised and the individual engages in problem avoidance, social withdrawal and emotional avoidance (Votta & Manion, 2004).

Seriousness of self-harm has not been found to correlate with the intentions of the individual, with the degree of damage and type of treatment required not being related to degree of suicidality, although depression was correlated to this (Plutchik, van Praag, & Conte, 1989).

Models of Self-Harm

A number of functional models have been proposed to explain self-harm, the most influential of which will be discussed below.

Neurological models

Simeon, Stanley, Frances et al. (1992) suggested that some of the traits found in people who engage in self-harm, such as anger, impulsivity, anxiety and aggression, may be linked to deficits in the brain's serotonin system. Alternatively, it may be that

those with normal serotonin functioning are more likely to express anger in more adaptive ways, while those with low serotonin levels engage in self-harm and suicidal acts (Favazza & Rosenthal, 1993).

Interpersonal models

Psychoanalytic theorists have argued that parental neglect and high levels of criticism from caregivers in early childhood may lead to insecure attachment, high levels of dependency and low self-esteem (Bowlby, 1975). Additionally, the lack of an internal working model of attachment based on secure attachment may cause individuals to encounter unbearable feelings of abandonment (Woods, 1988). These feelings may then be turned to anger at the self, either for craving affection or for being unlovable, which can then lead to self-harm as a way of punishment. This supports the finding that those who self-harm come from families with a lack of warmth and poor communication (Tulloch, Blizzard & Pinkus, 1997).

Self-harm in this sense is said to redefine boundaries between the self and others, which may be lost when experiencing the loss of abandonment (Simpson & Porter, 1981; Woods, 1988). The lack of secure attachment may have impeded the individual's ability to separate from the primary caregiver effectively (Walsh & Rosen, 1988).

It has also been suggested that self-harm may not only confirm boundaries, but may also create an identity that is distinct from others, particularly in adolescence (Simpson & Porter, 1981; Raine, 1982).

Environmental and social models

Environmental models of self-harm have their roots in behavioural and systemic theories and assume the system the individual lives in has an important role in determining their behaviour. Social learning theory states that self-harm arises through classical conditioning and is sustained by operant conditioning, either through the associated feelings of relief or from family or peer reinforcement.

Social status, peer attention and secondary gain have all been cited as motivations for self-harm (Offer & Barglow, 1960; Allen, 1995). Systemic theory has contributed to these concepts by suggesting that the individual who self-harms is also somehow serving a purpose in a system, for example deflecting from familial or marital discontent or conflict (Offer & Barglow, 1960; Bennum, 1984). As such, the self-harmer is rewarded with a positive reaction from others in the system and so the behaviour continues.

Conterio and Lader (1998) state that the spread of self-harm is like an 'epidemic' similar to a cultural obsession with thinness which leads to a rise in the number of people presenting with eating disorders. They state the recent portrayal of self-injurious behaviour in the media through celebrities, pop stars and television soaps contribute to a 'fad' of self-harm amongst adolescents who see it as a popular behaviour.

Bandura's (1973) model of social learning theory, whereby modelling, imitation and reinforcement can lead to individuals adopting behaviours seen to be reinforced by others, may explain the contagion effect of self-harm often seen in adolescents

(Simpson, 1975) and the increasing prevalence of self-harm in those without an identified psychiatric diagnosis.

Drive models

Drive models, incorporating suicide and sexual theories, claim that the function of self-harm is to enable the expression, or repression, of drives (for example, sexual drives).

Although the majority of the literature regarding self-harm recognises that suicide and self-injurious behaviours are distinct from each other and separated through their different motivations, there are some theorists who believe that self-harm is a way of avoiding suicide by compromising between life and death drives (Firestone & Seiden, 1990).

The sexual model of self-harm originates from Freudian theory and proposes that self-harm can be used as a means of sexual gratification, a way to avoid uncomfortable sexual feelings or as punishment for sexual thoughts.

Historically, support of this theory has arisen from the lack of self-harm prior to puberty and the sudden increase at the onset of maturation (Doctors, 1981; Offer & Barglow, 1960). However, as documented in a report for the Office for National Statistics, children as young as five years old are now displaying evidence of self-

injurious behaviour (Meltzer, Harrington, Goodman, Jenkins, 2001) which cannot be explained by this model.

Research also suggests that factors such as changing body image, increased egocentric preoccupation, anxiety and depression are strongly linked to self-harm (Evans, Hawton & Rodham, 2005; Orbach, Stein, Shani-Sela & Har-Evan, 2001) and again this model cannot adequately explain these relationships.

Emotion regulation models

As discussed in Chapter 5, self-harm has been found to be a strategy for regulating emotions in individuals who are unable to utilise a more functional strategy in a particular situation. Emotion, or affect, regulation models are the most influential and utilised model in current self-harm literature.

Emotion regulation models propose that self-harm is used to regulate emotions by gaining control over them and displaying them to others in a functional and appropriate manner (Allen, 1995; Woods, 1988).

The ability of self-harm to communicate negative emotions may be one reason for the sudden increase in self-harm observed in adolescents as they struggle to express and cope with their feelings regarding their physical maturation. Adolescents may not feel comfortable with expressing strong emotions such as anger to those who evoke it for

fear of rejection, and as such may turn this emotion inwards on themselves, in the form of self-harm (Raine, 1982; Freud, 1958).

In adolescents who are unable to employ adaptive coping responses to internal and external conflict and engage in self-harm, they may continue to self-harm as a form of punishment and guilt over their perceived inability to cope. Rodham, Hawton & Evans (2004) found that individuals who engaged in self-cutting most often listed their motivation as self-punishment and escape from an unpleasant state of mind. In contrast, those who took an overdose were more likely to state a wish to die.

Suyemoto (1998) has suggested that the functions of self-harm are related to concepts of anger, abandonment, low self-esteem and an inability to self-soothe. Conte & Plutchik (1995) and Malan (1979) agreed that self-injurious behaviours could be seen as defence mechanisms against anger and could be used as regulatory strategies for negative emotions arising from conflict.

The many conflicts involved in adolescence, the struggle for individuation, role transitions and testing of boundaries, may therefore act as triggers to self-harm in those who are not able to use a more adaptive problem-focused coping strategy.

Self-harm has also been documented as serving as a way of instigating feelings (Brown, Comtois & Linehan, 2002) or as a means to dissociate by decreasing physiological and subjective feelings (Haines, Williams, Brain & Wilson, 1995).

Harrison (1996) reports that self-harmers have described their acts as a process of coping with overwhelming feelings and regaining control. Favazza & Conterio (1989) found self-harm can provide relief from symptoms of anxiety and depersonalisation.

Nixon, Cloutier & Aggarwal (2001) also lend support to the relationship between the regulation of emotions and self-harm by documenting adolescent's reasons for self-harming as being to release tension and reduce depression.

Further support for this theory comes from the finding that adolescents who engage in self-harm are more likely to believe they need help but less likely to seek it, and show more avoidant behaviours and less focus on problems, than adolescents who do not self-harm (Evans, Hawton & Rodham, 2005).

Linehan (1993) proposed that invalidating relationships during childhood fail to teach functional emotion regulation strategies for managing distress, and that self-harm is a way of tolerating this arousal.

Favazza (1989) carried out a study of non-psychotic inpatients and their motivations for self-harm. From this, 12 explanations for self-injurious behaviour were given, including tension release, return to reality, establishing control, establishing security or uniqueness, influencing others and getting their attention and venting anger.

Similarly, Suyemoto & MacDonald (1995) found adolescents described their motivations for self-harm as a means of expression, control, dissociation and as a way of marking out of boundaries

Nock & Prinstein (2005) found that within an inpatient population self-harm was associated with hopelessness, past suicide attempts and the desire to stop bad feelings. Additionally they found an association between trying to create feelings, including pain, with major depressive disorder and posttraumatic stress, which is suggestive of the role of self-harm in ending dissociative states.

Ross & Heath (2003) state that despite a growth in the literature, little is still known about the precipitants of self-harm. They propose that the function of self-harm is to regulate affect, particularly anxiety and hostility, and found that adolescents who self-harm displayed a higher propensity to become anxious or hostile in response to stress.

This finding is consistent with Bennum's (1984) assertion that tension rises to an intolerable level in those who self-harm, who then lack the ability to resolve it through adaptive means.

Conclusion

Shearer (1994) looked at self-harm in patients with borderline personality disorder. Results showed that all 17 motivations were reported at least once by the 41 patients studied. It seems likely therefore, that motivations for, and functions of, self-harm are

complex and as such cannot easily be generalised into just one of the functional categorisations mentioned above, although the regulation of emotions appears to play a large part in the motivation to self-harm.

It is unlikely that any one of the models discussed above can offer a functional account of self-harm in all individuals, although they may be contributing factors. For example, the individual with poor emotion regulation may use self-harm as a way of controlling angry feelings, which is then reinforced by the behaviour of others, or by the release of tension, which feels similar to a sexual release.

In some instances it may be that self-harm acts as a vehicle for the induction of catharsis following a particularly stressful situation or negative feelings (Bennum, 1984). Findings by Darche (1990) support this theory, where higher levels of anxiety and hostility were reported by self-harming adolescents, although further studies are extremely limited (Ross & Heath, 2003).

The compounding role of additional variables such as interpersonal and environmental factors cannot be ignored, and the cumulative effect of experiencing a number of these factors concurrently is not known. Such variables will be discussed next, when looking at further motivations to self-harm.

Further Motivations for Self-Harm

Hawton & James, (2005) list possible motivations for self-harm as the wish to die, to escape from unbearable anguish, to change the behaviour of others, to escape from a situation, to show desperation to others, to change the behaviour of others, to make other people feel guilty, to gain relief from tension or to seek help.

It has also been suggested that in adolescents who are yet to fully develop abstract thinking, self-harm may serve to externalise emotions and convert them into a more manageable and understandable form of tangible, physical pain (Gratz, 2003).

Suyemoto (1998) suggests that self-harm serves multiple functions simultaneously. Therefore, it may be difficult to ascertain one particular motive for any one individual. However, in a review of the clinical literature, Gratz (2003) suggests functions of self-harm include the following motivations:

1. To relieve anxiety.
2. To release anger.
3. To relieve unpleasant thoughts and feelings.
4. To release tension.
5. To relieve feelings of guilt, loneliness, alienation, self-hatred and depression.
6. To externalise and concretise emotional pain.
7. To provide a sense of security.
8. To provide a sense of control.
9. To self-punish.

10. To set boundaries with others.
11. To terminate depersonalisation and derealisation.
12. To end flashbacks.
13. To stop racing thoughts

In further developing these functions, Osuch, Noll & Putnam (1999) identified six theoretical subscales in which 36 different motivations derived from self-harm literature were classified. These subscales were postulated to be: the use of self-harm to modulate affect, to influence others, as a means of magical control, to act as self-stimulation or as reflecting desolation or punitive duality.

Clinical trials using this scale found it was useful in not only classifying self-injurious acts, but also in aiding patients with the articulation and examination of previously undisclosed motivations.

Risk Factors and Further Influences on Self-Harm

Precipitants for self-harm are wide-ranging and include parental conflict, school difficulties, relationship problems, physical ill health, peer disputes, bullying, depression, low self-esteem, substance abuse, sexual problems and being in contact with family or friends who self-harm (Hawton & James, 2005).

As previously mentioned, body image, pubertal timing and poor emotion regulation may also be contributing factors.

Certain life events, such as arguments with girlfriends or boyfriends, have been found to precipitate an episode of self-harm (Hurry & Storey, 1998). However, in some cases there is no obvious trigger, and it is suggested that in such circumstances depression is a common factor (Hawton, 1989).

Hawton & James (2005) suggest those most at risk for self-harm are depressed adolescents, people who have previously self-harmed or those having an interpersonal crisis. Socio-economic deprivation has also been linked to self-harm, especially in males (Horrocks & House, 2002). Schizophrenia and alcoholism also have high risk to self-harm (Horrocks, 2002).

Sexual abuse is also strongly correlated with self-injurious behaviour. Although sexual abuse is also correlated with higher levels of body dissatisfaction, a direct link between self-harm and body image is not so well documented. Therefore, causality is hard to establish as poor body image is often accompanied by other risk factors such as depression and low self-esteem (Sobanski & Schmidt, 2000).

Hawton, Rodham, Evans & Weatherall (2002) found self-harm to be most common in those with a history of abuse and those who had been bullied.

Familial factors

Long-term vulnerability factors for self-harm include parental loss or separation and experiencing rejecting or overprotective parenting (Horrocks & House, 2002; Williams, 1997)

In an early study of self-harm, Graff & Mallin (1967) described individuals who harmed themselves as having cold, rejecting mothers and distant, harsh fathers.

Further vulnerability factors include abuse, physical or sexual, neglect, lack of a family confidant and a poor mother child relationship (Horrocks & House, 2002; Webb, 2002).

Self-harming adolescents are 20 times more likely to be living in a care environment or come from a broken home (Kerfoot, 1988; Hurry & Storey, 1998). Evans, Hawton & Rodham (2005) found adolescents who self-harmed were more likely to feel less able to talk to family members about problems than those who did not self-harm.

Thinking style

Cognitive thinking style has been linked to self-harm, with the suggestion that dichotomous/black-and-white thinking and cognitive rigidity leads to poor problem solving and the employment of maladaptive strategies such as self-harm (Horrocks & House, 2002).

Peer and media influences

Rosen & Walsh (1989) have suggested that peers act to influence and reinforce behaviours amongst their subculture. Thus, a 'deviant' social contagion effect is seen where certain behaviours, such as self-harm, are seen as attractive to vulnerable adolescents, and once employed offer membership and solidarity within a certain peer group.

The contagion factor is well documented amongst groups of youths in residential facilities or those who are incarcerated, with peer pressure, risk taking and curiosity all influencing the adolescent's decision (Derouin & Bravender, 2004). However, it is also becoming increasingly more documented amongst "normal" adolescents, particularly with relation to self-harm (Favazza, 1998).

Following the depiction of self-harm in a UK television drama, an increase in that particular type of self-harm was observed in cases admitted to general hospitals (Hawton, Simkin, Deeks et al., 1999). Hawton, Rodham, Evans & Weatherall (2002) found an awareness of self-harm by other people, such as family or friends, was significantly associated with self-harm in both males and females, although more so in females. Such findings suggest there may be a modelling effect in such cases as well as a cogitation effect.

Hawton et al. (2000) found that the death of an influential public figure or celebrity can influence rates of self-harm. However, it is not clear how this event interacted with self-harm and the literature regarding media influences is limited.

Young, Sweeting & West (2006) found that Glasgow teenagers from a Goth subculture were highly likely to engage in self-harm, with 53% admitting to carrying out such a behaviour at some point in their lives. However, in contrast to the contagion effect, they suggested that membership to the Goth subculture may have been a protective factor as higher rates of self-harm were reported before becoming a Goth than after. If true, this dispels the suggestion that individuals in such groups are copying subcultural peers or icons. Additionally, such groups may offer valuable levels of social and emotional support, reducing the need to regulate negative emotions through self-harm.

Summary

Horrocks & House (2002) have proposed a pathway to self-harm (seen in Figure 3) which recognises the impact of short-term risk factors or triggers, such as relationship difficulties and alcohol misuse. However, this model does not take into account those individuals who self-harm but do not have suicidal thoughts, and as such has limited applicability.

Skegg (2005) carried out a systematic review of risk factors in self-harm, a summary of which can be seen in Table 2.

Self-harm is an impulsive act. It is estimated that in around two thirds of cases there is no evidence of planning (Hoberman & Garfinkel, 1988), and that the act is in response to external triggers. Self-harm may then begin to serve a function, such as release of tension, and may soon become a compulsion in its own right (Osborne, 2002).

Despite the numerous risk factors for self-harm, none have been found to have a predicative value on future self-harm (Horrocks & House, 2002).

Protective factors in self-harm have received little attention (Fortune & Hawton, 2005) but include family cohesiveness, playing sports, religious beliefs (Fortune & Hawton, 2005), social support, cultural norms, an optimistic outlook (Skegg, 2005) and having a confidant (McNair, Cavanaugh & Rosenbaum, 2004).

Figure 3. The Pathway to Self-Harm (Horrocks & House, 2002)

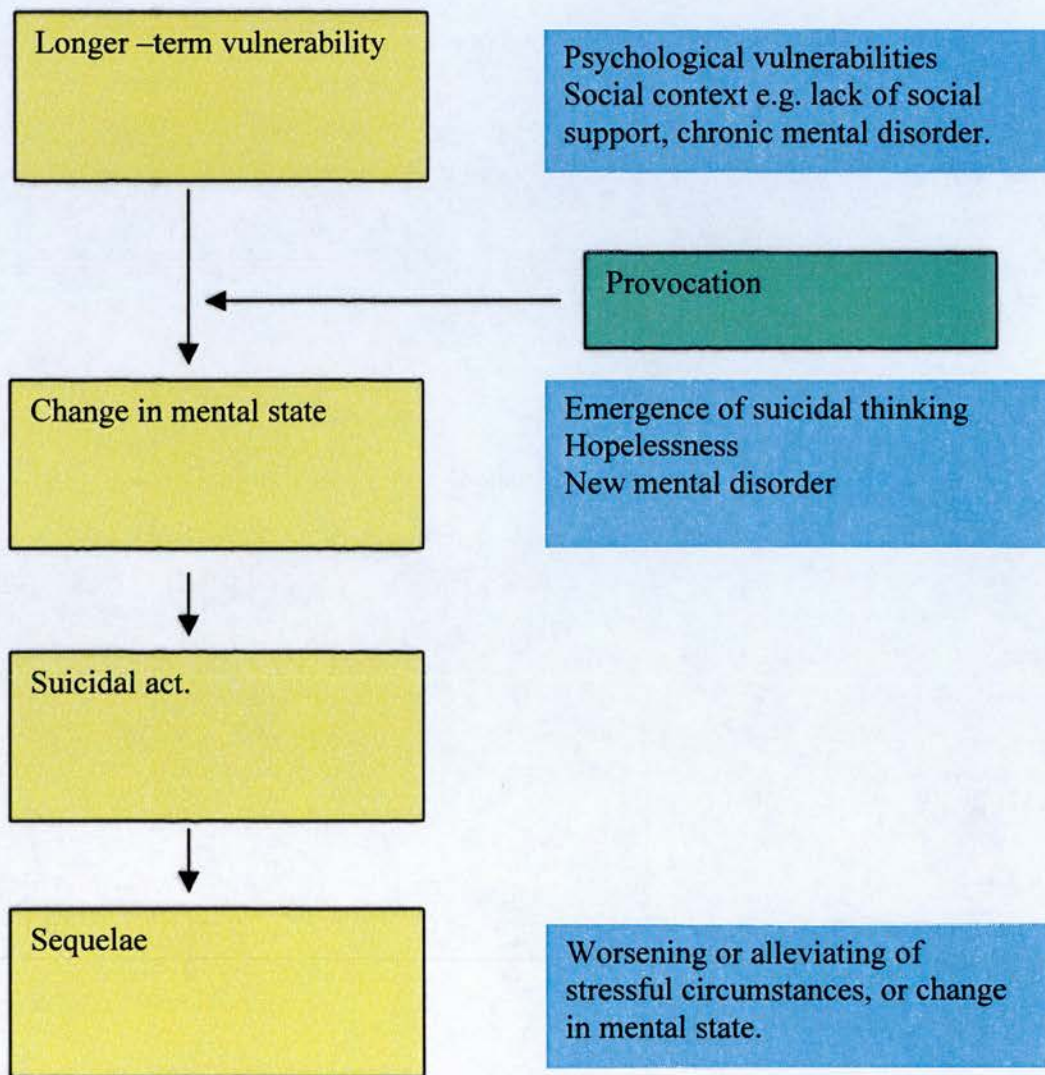


Table 2. Risk Factors in Self-Harm

Demographic Factors	Youth Female sex Socioeconomic disadvantage Homosexual or bisexual orientation
Social and family environment	Adverse childhood environment and experiences Interpersonal difficulties in adolescence
Psychiatric disorders	Depression Substance abuse Anxiety disorder Personality disorder
Psychological characteristics	Impulsivity Poor problem solving Over-general autobiographical memory (find it hard to recall specific coping strategies)
Neurobiological and genetic aspects	Inherited vulnerability or serotonin system
Situational factors	Adverse life events Media influence Awareness of self-harm of others Intoxication
Physical illness	Epilepsy HIV infection

CHAPTER 7: ADOLESCENTS – SPECIAL CONSIDERATIONS

Adolescence and Psychopathology

It is now widely recognised that psychiatric disorders, such as depression, can and do occur in childhood (Kovacs & Beck, 1977; Carlson & Strober, 1978).

Psychopathology in childhood and adolescence predicts future adjustment problems (Lewinsohn, Hops, Roberts, Seeley & Andrews, 1993) and increases the risk of future episodes in later life (Harrington, Fudge, Rutter, Pickles & Hill, 1990).

Lewinsohn, Hops, Roberts, Seeley & Andrews (1993) found high rates of psychopathology in an adolescent school sample, with more than 33% experiencing a psychiatric disorder at some point, and 9.6% meeting criteria for a current disorder. Amongst the most common disorders were anxiety and depression, with females being found to have higher rates of psychopathology overall (Lewinsohn, Hops, Roberts, Seeley & Andrews, 1993).

In a study looking at numbers of children and adolescents consulting their GPs over mental health problems, a prevalence rate of 5% was found for depression in an adolescent sample, with a rate of 4% being found for anxiety disorders (Martin-Guehl, Maurice-Tison & Bouvard, 2003).

High relapse rates have been found for psychopathology in adolescents, in particular depression (Lewinsohn, Hops, Roberts, Seeley & Andrews, 1993). Obviously then, there are implications for preventative strategies and early treatment interventions for psychopathology presenting in adolescence. As mentioned previously, adolescent anxiety and depression are related to self-harm, poor emotion regulation, poor body image and timing of puberty.

Diagnostic Considerations

It is suggested that it is particularly difficult to establish links between depressive disorders and self-harm in adolescents due to the cognitive and physical changes that are taking place at this time (Harrington, 2001). Mood swings are common during teenage years and often adolescents have difficulty describing their emotions, having yet to develop a fully sophisticated emotional lexicon or the ability to access this.

As such, depression in adolescents may have an atypical presentation, with displays of behavioural disturbance, withdrawal from social situations and poor school performance being common (Hawton & James, 2005).

Diagnostic systems, such as the DSM-IV and the ICD-10, have been criticised for being over inclusive in detecting depression in adolescents as many will find symptoms remit within a few weeks (Harrington, Kerfoot, Dyer et al., 1998). Therefore, depressed adolescents are often given a different primary diagnosis (Harrington, Fudge, Rutter, Pickles & Hill, 1990). Because of this, it has been

suggested that the best marker for depression in adolescents is the duration of symptoms, the presence of suicidal planning and marked weight loss (Harrington, 2001).

Research Considerations

Due to the ongoing developmental changes taking place during childhood and adolescence, certain aspects of the research process need special attention, in particular the ability of the individual to provide informed consent and to understand the consequences of this act.

As adolescents have developed abstract thinking and propositional logic (Flavell, 1963), and are able to understand hypothetical situations as well as real ones, they are more capable of understanding such consequences. However, Lewin & Dale (2003) propose that the following precautions need to be made: the adolescent should hear both the benefits and risks of the research and should be allowed time both before and after the study takes place to ask questions.

Further guidelines developed to safeguard children in research studies state that an explanation regarding confidentiality should be given and that individuals should be reassured that participation is voluntary and withdrawal will not incur a penalty (Royal College of Paediatrics and Child Health: Ethics Advisory Committee, 2002). In addition, no procedures harming the child or adolescent should be used, incentives should be fair if used and the researcher has a responsibility to inform parents or

guardians if they uncover information that they believe may jeopardise the child's well being (Society for Research in Child Development, 1990).

CHAPTER 8: SUMMARY AND HYPOTHESES

Summary

The introductory chapters have highlighted the link between self-harm in adolescence, the relationship between pubertal timing and both self-harm and body image, and the importance of functional emotion regulation strategies in the prevention of depression, anxiety and self-harm.

Adolescence has been found to be an especially vulnerable period in the development of negative body image, particularly in females (Feingold & Mazzella, 1998), although researchers have found that boys also experience body image concerns, especially if they perceive themselves to be underweight (Cohane & Pope, 2001).

In studying adolescence, and the impact of factors such as body image, it is important to look at individual coping strategies and the implications of these, one of which is the engagement in self-injurious behaviour. The way an individual regulates their emotions will determine how they cope with stressful situations. Self-harm can be defined as a dysfunctional emotion regulation strategy, and those who report higher levels of psychopathology are more likely to utilise such coping mechanisms (Silk et al., 2003).

The timing of puberty is particularly salient in the development of body image, with those perceiving themselves as early or late developers being more likely to deviate physically from their peers and suffer negative psychological consequences.

Based on findings from previous studies, associations were expected between psychopathology and self-harm, body image and self-harm, emotion regulation and self-harm, and timing of puberty and self-harm.

Salient issues for research were the investigation of motivations for self-harm. Such behaviours can precede suicide if not clinically treated (Hawton, Rodham, Evans & Weatherall, 2002), and understanding of these motivations is crucial in assessing and recognising those at risk in order to develop and implement explanatory models and subsequent treatment interventions (Hawton, Rodham, Evans & Weatherall, 2002). Gratz (2003) suggests that the areas of the function of self-harm and the risk factors are the most important in developing treatment and prevention strategies.

This study differed from other published studies in that it sought to consolidate previous research linking self-harm to body image, body image to pubertal timing and poor emotion regulation to psychopathology and self-harm. In addition, it aimed to examine these links in both a community and a psychiatric population. Until recently, little research has been carried out regarding self-harm in a community sample (Meltzer, Harrington, Goodman & Jenkins, 2001).

Basic aspects of self-harm, such as the frequency of different methods, have not been adequately explored as research has focused on associated risk factors and diagnostic categories, which adds little to the understanding of the motivation for self-harm (Nock & Prinstein, 2004).

In conclusion, the aim of the study was to determine whether there was a common psychological profile in terms of body image, perceived pubertal timing and emotion regulation in those individuals who reported engaging in self-harm as compared to those who did not.

The study further aimed to examine these variables, along with gender and the presence or absence of unwanted sexual experiences and being bullying, in order to establish the most salient risk factors for self-harm.

Finally, the study aimed to explore motivational differences for self-harm between adolescents from clinical and non-clinical populations.

Hypotheses

Hypothesis 1

- a) There will be differences in levels of anxiety between participants from a clinical group, a non-clinical self-harm group and a non-harming community group (as measured by the Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983)).
- b) There will be differences in levels of depression between participants from a clinical group, a non-clinical self-harm group and a non-harming community group (as measured by the HADS).
- c) Rates of self-harm will be higher in those with psychopathology (as measured by the HADS).

Hypothesis 2

- a) There will be differences in the type of emotion regulation strategies most often used by those participants from a clinical group, a non-clinical self-harm group and a non-harming community group (as measured by an Emotion Regulation Questionnaire (Phillips & Power, in press)).
- b) Dysfunctional emotion regulation strategies will be more likely to be utilised by those reporting self-harm (as measured by an Emotion Regulation Questionnaire).

Hypothesis 3

- a) Body image scores will differ between a clinical group, a non-clinical self-harm group and a non-harming community group (as measured by the Body Dysmorphic Disorder Questionnaire (Phillips, 2005)).
- b) Negative body image will be associated with self-harm (as measured by the Body Dysmorphic Disorder Questionnaire).

Hypothesis 4

Puberty stage will be a risk factor for self-harm, with those who started either earlier or later than their peers being most likely to self-harm (as measured by participant's self-reported perception of pubertal timing as either early, on time or late).

CHAPTER 9: METHODOLOGY

Design

Aim

The study aimed to explore the motivations behind self-harm in both a clinical and non-clinical population and determine risk factors for self-harm in these populations. Furthermore, it aimed to establish links between body image, perceived pubertal timing, anxiety/depression and emotion regulation in those individuals who reported engaging in self-harm.

The study included adolescents aged 16-18 years from local schools (non-clinical/community groups) and from psychology, psychiatry and mental health charity services (clinical group).

It was anticipated that the data would enhance current knowledge of self-injurious behaviours, with obvious implications for the understanding of self-harm motivations and the psychological treatment of self-harm.

Study design

The study utilised both a within and between subjects design to examine common factors, identify relationships and compare for differences on a number of variables between clinical and non-clinical groups, and also within each group.

Questionnaires were distributed to a cross-sectional sample of the identified populations.

The study involved examining a number of psychological variables through the use of standardised questionnaires. Three of the questionnaires used have well-established validity and are widely used for research and clinical purposes (Hospital Anxiety and Depression Scale, Self-Injury Motivation Scale and Body Dysmorphic Disorder Questionnaire). Additionally, because of the exploratory nature of the study, and lack of measures with proven reliability and validity, two non-standardised questionnaires were also used (Emotion Regulation Questionnaire, Self-Harm Inventory).

Participants

In total 218 participants took part in the study. 21 participants came from a clinical population and 197 came from a non-clinical school population.

Of those recruited through mental health services, 8 came from Psychological Services, and 3 came from the mental health youth project, Penumbra. A further 10

participants from the school group were moved to the clinical group as they indicated on their questionnaire that they were currently in contact with, or had previously been seen by, a mental health service.

Table 3 shows these groups in relation to gender. 52% of the overall sample were female, with 50% of the non-clinical group being female and 71% of the clinical group being female.

Table 3. Number of Participants by Gender

	School Group	Clinical Group	Total
N (%)	197 (90%)	21 (10%)	218
Number of Females (%)	99 (50%)	15 (71%)	114 (52%)
Number of Males (%)	98 (50%)	6 (29%)	104 (48%)

Measurement and Instruments

Demographic information

Participants were asked to complete a brief questionnaire comprising questions on the following demographic and socioeconomic information:

- Age.
- Sex.
- What school they attended.

- Who they lived with.
- Social support and confidants.

Questions were also included eliciting information which the literature suggests may be correlated to self-harm and included questions on the following:

- If they had been bullied.
- If they had experienced any unwanted sexual experiences.
- If they believed they started puberty earlier or later than their peers.

Questionnaire measures

The following five questionnaires were selected for use in the study (a copy of the combined set of questionnaires can be found in Appendix A):

Emotion Regulation Questionnaire:

A 21-item Emotion Regulation Questionnaire, derived from a 19-item version developed by Phillips and Power (in press) was administered to participants. The emotion regulation questionnaire has good reliability as measured by Cronbach alpha values for internal reliability (internal-dysfunctional $\alpha = 0.716$, internal-functional $\alpha = 0.758$, external-dysfunctional $\alpha = 0.757$, external-functional $\alpha = 0.659$) (Phillips & Power, in press). It also correlates with a standardised measure of quality of life (The Kidscreen QOL instrument; Ravens-Sieberer et al., 2001; 2002) indicating its validity.

The 21-item version was found to be an improvement on the 19-item version (Power, in preparation) as it included a further two items on the external-functional subscale which was found to be problematic in the previous version. The 21-item version was used in the current study.

Although the 21-item questionnaire is yet to be published and therefore is not a standardised measure, it was felt appropriate to use it as it has been reported to have good reliability and validity (Power, in preparation), is easily administered and is a brief questionnaire. Additionally, there was no other scale available measuring both the external/internal and functional/dysfunctional dimensions of emotion regulation, which were felt to be important aspects of emotion regulation in the present study (examples of these dimensions can be seen in Table 1 in Chapter 5).

The Hospital Anxiety and Depression Scale (HADS):

The HADS is a present state instrument measuring anxiety and depression, devised by Zigmond & Snaith (1983). Designed for use in inpatient wards, it assesses distress independently of somatic symptoms. These may complicate diagnosis if included in an adolescent screening tool as vague, non-specific physical complaints such as headaches, muscle aches, stomach aches or tiredness are common in anxious and depressed adolescents (Harper, Marks & Nelson, 2002).

The HADS consists of a 14-item scale with seven depression items and seven anxiety items. Each item has a possible four responses, which are then scored as ranging from 0 to 3. Scores are totalled for both anxiety and depression, giving a score between 0 and 21. Scores are classified as showing moderate to severe anxiety/depression if the

individual scores between 11 and 21. The time frame for the HADS ratings is for the 'past week'.

The HADS has been described as a short, user friendly, easily scored instrument, which is widely used with adults (Bedford, de Pauw & Grant, 1997). The use of the HADS as a screening tool for depression in adolescents has been explored by Berard & Ahmed (1995) and White, Leach, Sims, Atkinson & Cottrell (1999).

In use with adolescents, modifications to the cut off scores used with the HADS have been suggested, in order to minimise false negatives in adolescent community populations and false positives in adolescent clinical populations (White et al., 1999). It is recommended that if an adolescent scores between 7 and 9 on the depression subscale then possible depression is indicated. If they score between 9 and 11 on anxiety items they can be classified as suffering from probable anxiety. Any scores above these cut off levels would indicate probable depression/anxiety and those below would show an absence of significant anxiety/depression symptoms (White, Leach, Sims, Atkinson & Cottrell, 1999). These are higher than the cut off levels of 8 and 11 that are used with adults (Zigmond & Snaith, 1983). This method of scoring was utilised in the present study due to its proven reliability with an adolescent population.

Overall findings suggest that in clinical, non-clinical and self-harming adolescents, the HADS is a reliable screening instrument with adequate sensitivity and specificity for use with both adolescent psychiatric and community samples (White et al., 1999). Its extensive use with adults and proven reliability and validity (Snaith & Zigmond, 1994; Moorey, Greer, Watson et al., 1991) make it practically suitable for screening

for anxiety and depression using an easily administered, easy to comprehend instrument (Snaith & Zigmond, 1994). Additionally, its brevity was considered an important factor when determining suitability, as it was felt that a longer questionnaire would lead to the adolescents in the current study being overwhelmed, particularly as it was being combined with a further four questionnaires.

The Body Dysmorphic Disorder Questionnaire (BDDQ):

The BDDQ (Phillips, 2005) is a self-report screening instrument for body dysmorphic disorder, which has a specific version for use with adolescents. It comprises one multiple choice question and three yes/no questions regarding body image, which are then supplemented with optional open ended questions or multiple choice questions. For example, one of the questions asks if the participant is concerned with the way they look. If they answer yes they are then asked to tick areas of their body they dislike and whether they wish they could think about them less. For each question participants answered yes to, a score of 1 was allocated, giving an overall score of between 0 and 6 to allow for these scores to be compared with other variables.

The BDDQ shows excellent agreement with a clinician's judgement in the detection of body dysmorphic disorder when using diagnostic criteria (Phillips, 2005).

Additionally, it has been found to have sensitivity of 100% and specificity of 89% (Phillips, Atala & Pope, 1995). The BDDQ has the advantages of being a brief report, and it was felt that using such a measure might elicit a more accurate picture of body concerns than by interviewing participants, as they would be less self-conscious (Phillips, 2005).

Although the current study was not concerned with diagnosing body dysmorphic disorder, the BDDQ was felt to be a helpful tool in assessing firstly if the participant has body image concerns, secondly what these are and finally, the impact these have on the individual. The BDDQ measures these areas by asking if the participant is worried about the way they look, how the problem affects their life, if it has caused problems with school, if it has led the individual to avoid things and how long they spend thinking about their appearance in an average day.

Self-Harm Inventory:

A retrospective self-harm checklist (Schwannauer, unpublished) was used to assess the type, frequency and severity of self-harm individuals engaged in. It consisted of a 12-item inventory of self-injurious behaviours. Individuals were asked to indicate whether or not they had carried out each act with the intention of deliberately harming themselves, firstly in the past year, and then during the past week. If participants indicated that yes, they had engaged in any of the behaviours, they were then asked to indicate how many times and how serious, both using the codes given (see Table 4).

As this questionnaire was a non-standardised measure, and could be altered to suit the needs of the population it was measuring, the format was adapted slightly from the original version to enhance understanding. The word 'lethality' was substituted with the word 'severity' as it was felt this would be more easily understood by adolescents, and the layout was changed slightly to make it visually less confusing (see Appendix B for the original version).

Table 4. Coding for the Self-Harm Inventory

Code Number	How many times?	How serious
1	Once	Not at all serious
2	2-10 times	Quite serious
3	11-20 times	Moderately serious
4	More than 20 times	Very serious
5	-	Extremely serious

The Self-Injury Motivation Scale II (SIMS-II):

The SIMS-II (Osuch, Knoll & Putnam, 1999) comprises 36 statements regarding motivations for self-harm. Respondents were asked to rate each of the statements on an 11 point scale, ranging from 0 (never) to 10 (always), on how well they described their reasons for engaging in self-harm. Motivations were scored on six dimensions; affect modulation, desolation, punitive duality, influencing others, magical control and self-stimulation to determine the most frequently cited motivation for each individual. Table 5 shows an example of a motivation for each of the above dimensions.

The SIMS-II has been found to have excellent internal consistency for clinical purposes in an inpatient population on total scores, although it was suggested that magical control and self-stimulation results were too inconsistent to give reliable results (Kumar, Pepe & Steer, 2004). As yet, no studies have evaluated this instrument with a non-clinical population. However, it is the only self-harm

motivational scale to be evaluated with adolescents and as such was considered valuable in the present study.

Table 5. Examples of Self-Harm Motivations as Measured by the SIMS-II

Motivation	Example of Behaviour
Affect Modulation	<i>To help me escape from uncomfortable feelings or moods.</i>
Desolation	<i>To diminish feelings of being utterly alone.</i>
Punitive duality	<i>To remind myself I deserve to be hurt or punished.</i>
Influencing Others	<i>To show others how angry I am.</i>
Magical Control	<i>To 'protect' important people in my life.</i>
Self Stimulation	<i>To provide a sense of excitement or stimulation that feels exhilarating.</i>

Readability

Questionnaires were checked for readability values and it was felt these were particularly important due to the age of the participants. Readability scores showed no passive sentences, which may have confused the participants, and showed a Flesch Reading Ease Score of 77.7 (high readability) and a Flesch-Kincaid Grade Level of 4.8 (indicating it would be easily understood by someone with 4.8 years education).

In addition, eight adolescents were given the questionnaire prior to the study commencing and were asked to comment on how easy it was to understand. All eight reported it was easily understood and did not feel confused by it. Additionally they did not report that they felt any of the wording should be changed.

Power Calculation

Papers were located examining the relationships between self-harm and body image (Muehlenkamp, 2006), and body image, pubertal timing and adolescent mental health (Siegel et al., 1999). However, the present study aimed to explore all these variables along with the motivations for self-harm and the relationship between emotion regulation and self-harm. As such, no paper measuring the relationship between all these variables was found.

Consequently, the target sample size and corresponding power calculation were based on differences in anxiety and depression scores between a self-harm population and a control sample.

The author located a paper by Ross & Heath (2002), which used an analysis of variance (ANOVA) to examine differences in depression and anxiety scores in self-harming and non-harming groups.

Using Cohen's (1992) formula for calculating effect size (for ANOVAs) the Ross & Heath study was found to demonstrate a large effect size ($d = .8$ for depression and $.6$

for anxiety). As such, a large effect size was selected. Based on Cohen's (1992) estimate of sample size (setting power at 0.8 and alpha at 0.05), analysis of variance between groups would require that $N = 26$ in each group.

Ethical Approval

Ethical approval was granted by the Borders Research Ethics Committee, a copy of which can be seen in Appendix C.

Originally, the study sought ethical approval to send current psychology and psychiatry patients in the required age group a copy of the questionnaire by mail. The researcher attended the meeting of the committee and at this point was raised as a possible ethical issue. It was decided that it would be more appropriate for participants in the clinical group to be invited to take part in person, by their current therapist or key worker.

This also allowed for the professional involved to make a judgement on each participant's suitability and to monitor their mood and self-harm subsequent to filling in the questionnaire. Osuch et al. (1999) report that use of the SIMS-II should be supervised as *'there are some clinical patients who may have increased urge to engage in SIB (self-injurious behaviour) after completing the questionnaire'* (Osuch et al., 1999, p10).

It was also decided that questionnaires given to the community sample would be coded to correspond with consent forms to enable identification of individuals if their questionnaire indicated that there was a significant risk to their wellbeing.

Procedure

Recruitment of participants

Participants were recruited in one of two ways, depending on whether they belonged to the clinical or non-clinical group.

i) Non-clinical group

The non-clinical group was recruited through local schools. Head Teachers from local secondary schools were contacted by post. They were given a brief description of the study and asked to consider taking part. They were also sent a copy of the questionnaire, a consent form and an information sheet. A copy of all the information sent to schools can be found in Appendix D.

Four schools were contacted and asked to consider taking part. These schools were chosen because they covered a broad area of the Borders, and also because the researcher had experienced some contact with guidance staff through previous clinical work.

Schools were asked to contact the researcher to discuss the study further if they were willing to allow the questionnaires to be distributed during social education classes. Three schools contacted the researcher and agreed to take part. All were located in the Scottish Borders and were in areas with similar socioeconomic status, as based on the Scottish Index of Multiple Deprivation (SNS, 2005).

The researcher discussed the study with guidance staff, either in person or over the telephone, and arranged to go to the school to carry out the research. The researcher then attended social education classes and gave a brief presentation about the study to pupils aged between 16 and 18 years old. Pupils were informed that participation was voluntary and confidential. The information sheet was given to pupils outlining the details of the study and answering some questions that it was predicted they might have, such as any benefits or negative consequences of participating.

Pupils were informed that the questionnaire involved the topic of self-harm and that some individuals may find this upsetting. If this was the case students were asked to express their concerns to either their guidance teacher, another teacher, a parent, or the researcher (whose contact address, telephone number and email address were included on the information sheet).

Pupils were then advised that if they wished to participate they would have to sign a consent form, stating that the study had been explained to them, that they understood it was voluntary, and that they understood they were free to withdraw at any time. It was explained that although the study was confidential, questionnaires and consent forms were coded to correspond to each other, in order to identify any pupils whose

answers were felt to be alarming. Although it was felt that some pupils may be deterred by this and subsequently may not want to take part, this was considered to be a necessary safeguard due to the sensitivity of the study subject matter.

Those who signed the consent form and agreed to take part in the study were given an additional copy to keep so they knew what they had signed.

Teachers were asked to inform the researcher of any pupils who were not appropriate for the study. Pupils were excluded if they had a confirmed or suspected learning disability. Inclusion and exclusion criteria can be seen in Table 6.

210 students met inclusion criteria and agreed to participate, completing the questionnaire. Two students declined to take part.

Because the timing of the study coincided with the timing of the Scottish Higher Exams, 50% of the questionnaires were given out preceding the exams and the remaining 50% were given out after the exams, in an attempt to control for the effects of exam stress.

Table 6. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Aged 16-18	Aged under 16 or 19 and over.
Attendance at one of three schools participating in research	Diagnosis or suspected diagnosis of learning disability.
	Felt to be unsuitable by teacher.

ii) Clinical group

Members of Community Mental Health Teams, Psychological Services and Penumbra mental health charity were contacted by post regarding the study. Each group were sent an introductory letter, a copy of the questionnaire and a consent form.

Additionally, the researcher met with individuals from community mental health teams and Penumbra to discuss the study further.

The information posted, which can be seen in Appendix E, explained the purpose of the study and asked practitioners to distribute the questionnaire to individuals they felt would be appropriate participants. As mentioned, it was felt that due to the sensitive nature of some of the material in the study, namely the questions regarding self-harm, individuals should only be recruited from current caseloads (i.e. not from waiting lists as they would not be in contact with a professional) and that they should be recruited through key workers who would be able to offer support and monitor their behaviour.

Potential participants were asked to read an information leaflet explaining the study and, as with those in the non-clinical group, were asked to sign the consent form stating that the study had been explained to them and that they understood participation was voluntary and could be withdrawn at any time. Those who agreed were given the set of questionnaires and informed they could complete it in the presence of their key worker, the researcher or that it could be taken away and returned by post in a stamped addressed envelope.

Questionnaires were coded as to whether they came from psychology, psychiatry or Penumbra.

The same exclusion criteria applied to this group as to the non-clinical group.

11 individuals met inclusion criteria and agreed to take part in the study. Eight of these were returned from individuals recruited through Psychological Services, three from Penumbra and none from community mental health teams. The number of individuals approached to participate in the study who declined is not known.

Data collection

Data collection for both groups involved the administration of the questionnaire described above.

i) Non-clinical group

The researcher was present during completion of the questionnaire. Classes of approximately 10-15 pupils were administered the questionnaire at a time. These pupils were attending regular social education classes, although in one school the numbers were depleted due to some pupils taking part in rehearsals for music exams and sports events.

Pupils were seated so that they could not see their peers' responses, and were asked to inform the researcher if there was anything in the questionnaire that they did not understand, that upset them or evoked strong negative emotions. No one asked for clarification on any of the items or reported any discomfort as a result of completing the questionnaire.

Pupils were asked to deposit their finished questionnaire into an envelope at the front of the room with consent forms being placed in a separate envelope. As mentioned previously, although questionnaires were confidential, participants were informed that the consent forms and questionnaires had been given a corresponding numbers so that the researcher could contact an individual if their questionnaire indicated significant risk to themselves or others.

Once all questionnaires had been handed in, participants were asked if they had any questions. They were thanked for their participation and reminded that if they would like to discuss any aspect of the study or if they were worried about their own or someone else's self-harm, that they could contact the researcher, whose details were on the information sheet they had been given. No questions were asked and subsequent to the administration of the questionnaire no pupils contacted the researcher.

Guidance teachers were given self-help information leaflets used and developed by Scottish Borders Psychological Services on a variety of topics, including self-harm, depression and anxiety, and pupils were advised that these were available.

Finally, the school was given the option of asking the researcher to return to the school for some 'drop-in' sessions, where pupils would be able to speak to them confidentially regarding any worries or psychological problems, although all three schools declined to accept this offer.

ii) Clinical Group

Participants were given the questionnaire during regular psychology or psychiatry sessions, or during meetings with Penumbra key workers. Those who filled in the questionnaires during sessions were able to ask any questions and discuss any emotions elicited by the questionnaire. Of the eight participants recruited through Psychological Services, three chose to complete the questionnaire during session time. No questions were asked regarding the questionnaire, although a general discussion regarding self-harm took place with one participant.

Participants who chose not to complete the questionnaire during sessions returned it by post. Because the researcher was not in constant contact with the other services used to recruit participants, it is unknown how many individuals agreed to take the questionnaire away and consider taking part but then failed to return it.

Order Effects

Five separate questionnaires were combined to create the one single questionnaire given to participants. There was therefore a potential order effect, but this was considered minimal because the questionnaires were unrelated in topic, apart from the two questionnaires asking about self-harm, which were presented concurrently.

Because the questionnaires were not closely related it was not felt that there was a high potential for one questionnaire to impact the participants' answers on a

subsequent questionnaire (e.g. it was felt unlikely the body image questionnaire would impact the answers on the self-harm measures).

The questionnaires were combined in the following order:

- Emotion Regulation Questionnaire.
- Hospital Anxiety and Depression Scale.
- Body Dysmorphic Disorder Questionnaire.
- Self-Harm Inventory.
- Self-Injury Motivation Scale-II.

Although self-harm was the most salient issue, it was felt that individuals would perhaps feel more comfortable answering the other questionnaires first, as these posed less opportunity for discomfort and as such were placed at the end of the combined questionnaire.

Preparing Raw Data for Analysis

The combined questionnaire was divided into its five separate questionnaires and each was scored according to its own procedure. Data were then entered into SPSS (Statistical Package for the Social Sciences) Version 14.

CHAPTER 10: RESULTS

Preparation of Data for Analysis

Requirements for parametric tests

The distributional assumptions of the variables to be analysed using parametric statistics were analysed by examining histograms, skewness and kurtosis scores for each variable. A table showing these values can be seen in Appendix F.

Four variables were found to be positively skewed, one of the emotion regulation sub-scales (external dysfunctional), all SIMS-II sub-scales, body image scores and the depression sub-scale of the HADS.

A natural logarithm ($x+1$) transformation was carried out on two of these variables (depression and emotion regulation sub-scale scores) to enable parametric tests to be carried out. SIMS-II and Body Image scores could not be transformed, and this will be explained further when the distribution of items on each questionnaire measure is discussed.

The distribution of scores for the remaining measures did not depart significantly from normality. Additional dichotomous and ordinal variables were analysed using non-parametric tests.

Data were analysed using SPSS (Statistical Package for the Social Sciences) version 14.

The significance level of test results, unless otherwise stated, was set at $p = .05$ (two-tailed).

SPSS output data for results found to be statistically significant can be seen in Appendix G.

Descriptive Statistics: Characteristics of the Sample

The sample group was split into a group of self-harming individuals from the school sample, a 'healthy' non-harming school group and a clinical sample.

Demographic and additional information gathered was collated and is presented below.

Gender

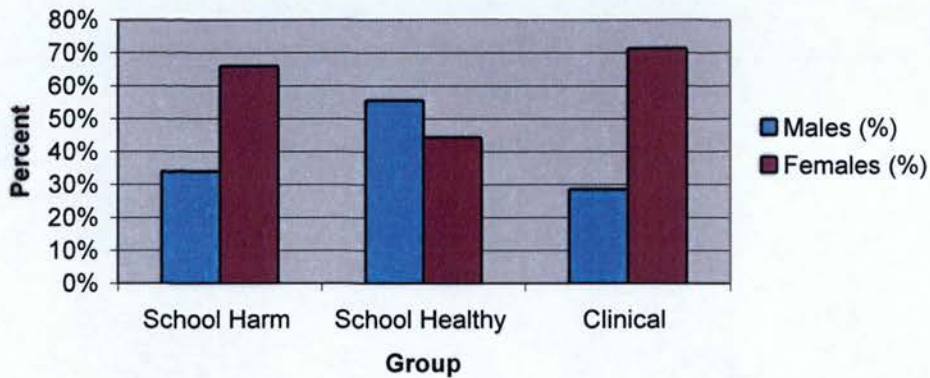
The total number of males who took part in the study was 104 and the total number of females was 114.

Across all groups the male to female ratio was 0.72:1, with 48% (N=104) being male and 52% (N=114) being female. The ratio of males to females in each of the three groups can be seen in Table 7. Graph 1 shows the percent of males and females in each of the three groups.

Table 7. Distribution of males and females

	School Harm	School Healthy	Clinical
N (%)	53 (24%)	144 (66%)	21 (10%)
Ratio Male:Female	1:1.94	1.25:1	1:2.5

Graph 1: Percent of Males and Females in each group.



Age

Distribution of age across participants was slightly positively skewed. This could be explained by the timing of the research, as some of the questionnaires were distributed after year groups had moved up following examinations. Consequently the older pupils had left school and there was a further intake of those at the lower end of the age range.

Across all groups the mean age was 16.28 (SD .463). Table 8 shows the mean distribution of age split across the three groups. The table also shows the range of ages in each group.

No significant difference was found between the age of male and female participants. The mean age for male participants was 16.268 (SD .449) and the mean age for females was 16.289 (SD .476) (See Graph 2).

Across the three groups, females outnumbered males in both the school self-harm group and the clinical group but not the healthy school group. Table 9 shows the distribution of gender split across the three groups.

Table 8. Age Range Across Sample Group

	School Harm	School Healthy	Clinical
N (%)	53 (24%)	144 (66%)	21 (19%)
Mean (SD)	16.28 (.56)	16.23 (.37)	16.51 (.58)
Range	16.0 – 18.0	16.0 – 17.11	16.0 – 18.0

Graph 2: Mean age split by gender

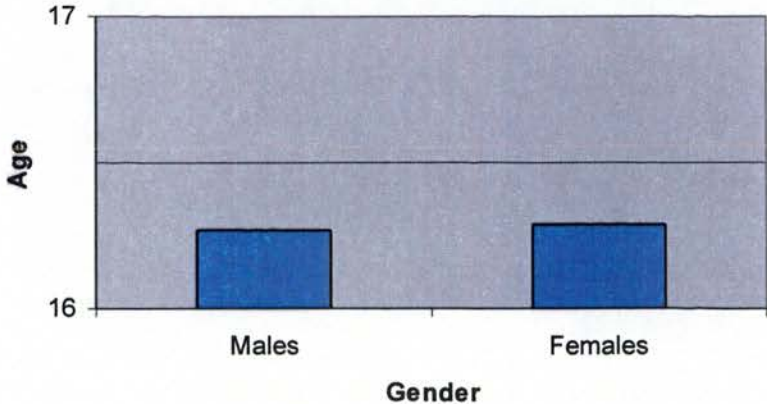


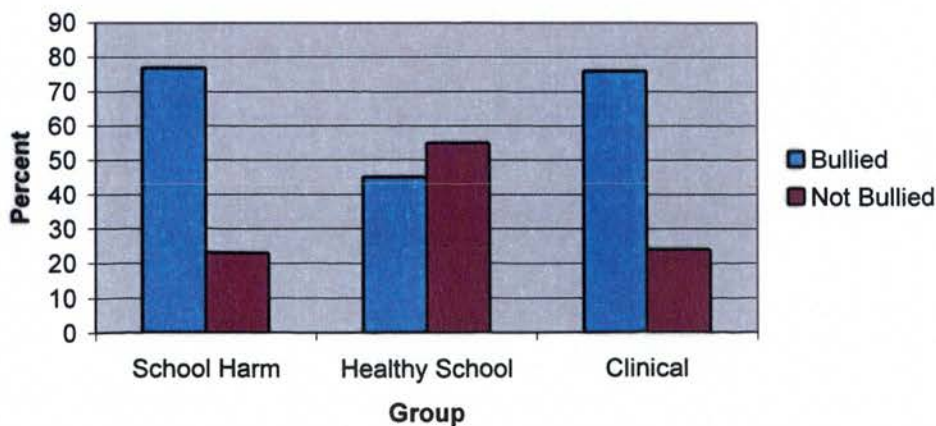
Table 9. Distribution of Gender Split Across the Three Groups

	School Harm	School Healthy	Clinical
Number of Males (%)	18 (35%)	80 (56%)	6 (29%)
Number of Females (%)	34 (65%)	64 (44%)	15 (71%)

Bullying

Overall 56% (N=122) of participants reported being bullied at some point in their lives. The percentage of people in each group who reported being bullied can be seen in Graph 3. Both those from the clinical group and the school harm group had a higher percentage of people reporting being bullied than not. Only those in the healthy school group were more likely to report that they had not been bullied, although 45% still reported being bullied at some point.

Graph 3: Bullying split by group



Puberty

All participants were asked about their experience of the timing of puberty.

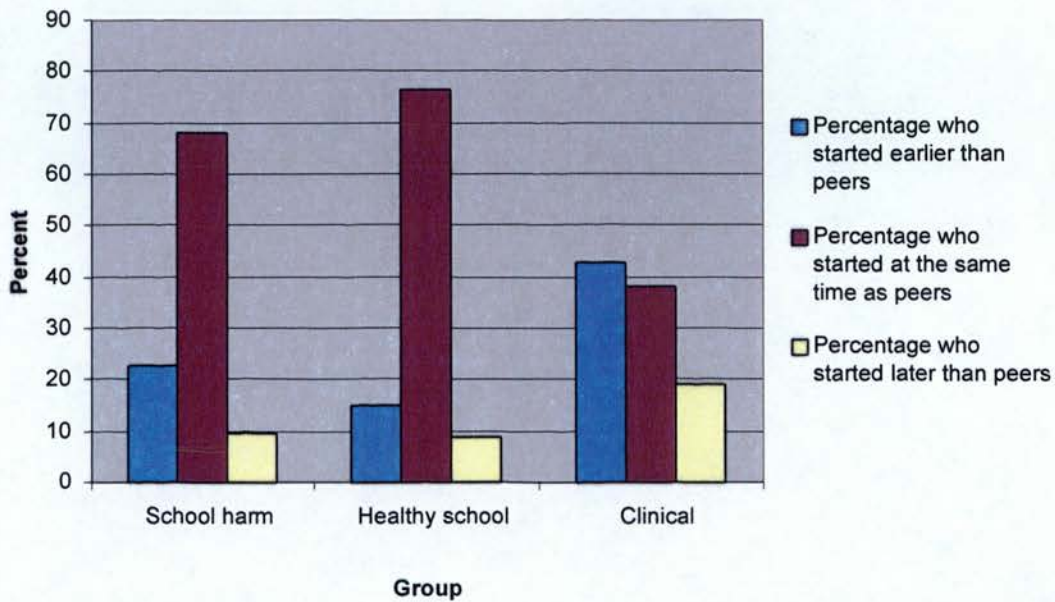
19% (N=42) of participants reported that they believed they had started puberty earlier than their peers. 69% (N=151) felt they had started puberty at the same time as their peers, and 10% (N=21) thought they started puberty later than their peers.

Table 10 shows the number of participants in each group who believed they had started puberty earlier, at the same time as, or later than their peers. This can also be seen as a percentage of each group in Graph 4.

Table 10. Timing of Puberty Split by Group

	School Harm	School Healthy	Clinical
<i>N</i>	53	144	21
<i>Missing</i>	0	4	0
Number who started earlier (%).	12 (22.6%)	21 (15%)	9 (42.9%)
Number who started at the same time (%).	36 (67.9%)	107 (76.4%)	8 (38.1%)
Number who started later (%).	5 (9.4%)	12 (8.6%)	4 (19%)

Graph 4. Timing of Puberty as Percentage of Group.



Unwanted sexual experiences

Participants were asked if they had encountered any unwanted sexual experiences.

Overall, 8% of participants responded yes (N=17). Graph 5 shows this number as a percentage split by groups.

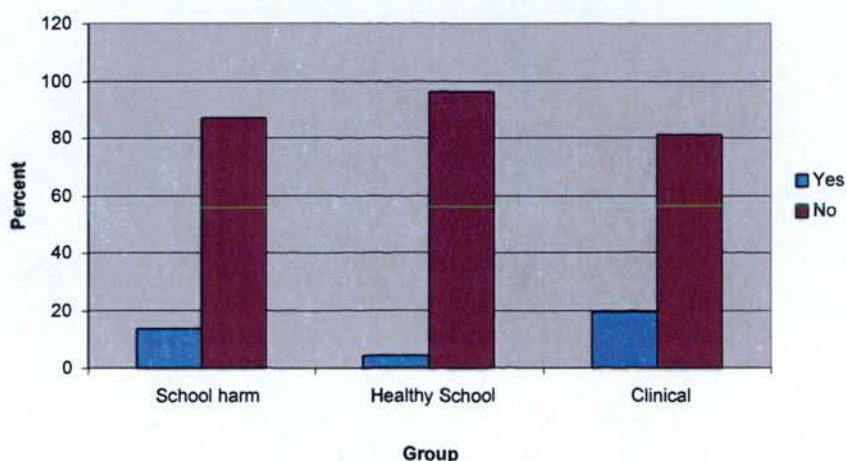
In the school group of self-harmers, 13.2% reported unwanted sexual experiences.

4.2% of the healthy school group reported unwanted sexual experiences, and 19% of the clinical group reported unwanted sexual experiences.

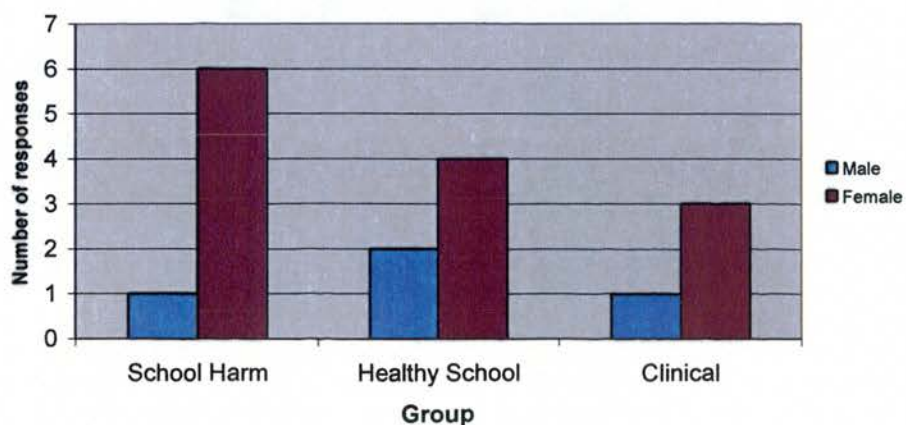
As the graph shows, a higher percentage of participants in the school harm group and clinical groups reported having such experiences.

Graph 6 shows the distribution of gender in those who reported unwanted sexual experiences, with females being more likely to report unwanted sexual experiences in all groups.

Graph 5: Percentage of Participants Reporting Unwanted Sexual Experiences.



Graph 6: Gender and unwanted sexual experiences



Distribution of Items on Questionnaire Measures

Emotion Regulation Questionnaire

The emotion regulation questionnaire comprises 21 items, which require a response on a 5-point Likert scale (never, seldom, often, very often, always).

Items are split into four sub-scales; external-functional, external-dysfunctional, internal-functional and internal-dysfunctional.

Responses in items belonging to the external-dysfunctional scale were positively skewed, and as mentioned were subsequently transformed to allow parametric tests to be carried out.

Table 11 shows the mean responses for each sub-scale by the three groups.

Table 11. Mean Scores for Emotion Regulation Sub-Scales

	School Harm	School Healthy	Clinical
External-Functional Mean (SD)	16.9 (4.1)	16.42 (4.6)	16.00 (4.51)
External-Dysfunctional Mean (SD)	9.35 (3.00)	8.15 (2.57)	10.04 (4.16)
Internal-Functional Mean (SD)	13.69 (3.38)	13.25 (3.76)	13.04 (3.96)
Internal-Dysfunctional Mean (SD)	12.43 (3.61)	9.27 (2.91)	14.52 (5.11)

Hospital Anxiety and Depression Scale

The HADS comprises a 14-item scale with two sub-scales (anxiety and depression), each with seven items.

The mean anxiety score for the sample was found to be 7.15 (SD 3.57) and the mean depression score was 3.55 (SD 2.98). Mean scores split by groups can be seen in Table 12 (anxiety) and Table 13 (depression). Depression scores were positively skewed and were subsequently transformed to allow parametric assumptions to be met.

Table 12. Mean Anxiety Scores

	School Harm	School Healthy	Clinical
Mean	8.22	6.25	10.75
SD	3.80	2.79	4.84

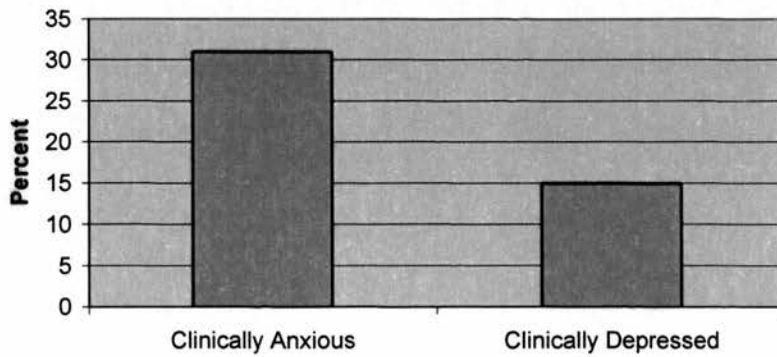
Table 13. Mean Depression Scores

	School Harm	School Healthy	Clinical
Mean	4.26	3.00	5.65
SD	2.84	2.68	4.04

The cut-off score as recommended for adolescents for the HADS is 9 for anxiety and 7 for depression.

Using this cut-off with the current sample found that 31% of participants (N= 69) were classified as being clinically anxious and 15% of participants (N=32) were classified as being clinically depressed (see Graph 7).

Graph 7: Percent of participants meeting Anxiety/Depression criteria.



Body Dysmorphic Disorder Questionnaire

The BDDQ comprises six questions relating to body image. Responses were scored by totalling the number of questions participants indicated a positive response to, giving a range of scores from 0 to 6.

Mean scores for body image can be seen in Table 14. Scores were positively skewed due to the large number of people who did not have body image concerns (58.7%) and so there was no variance between a large number of scores. As such, transforming the data would not have normally distributed these scores.

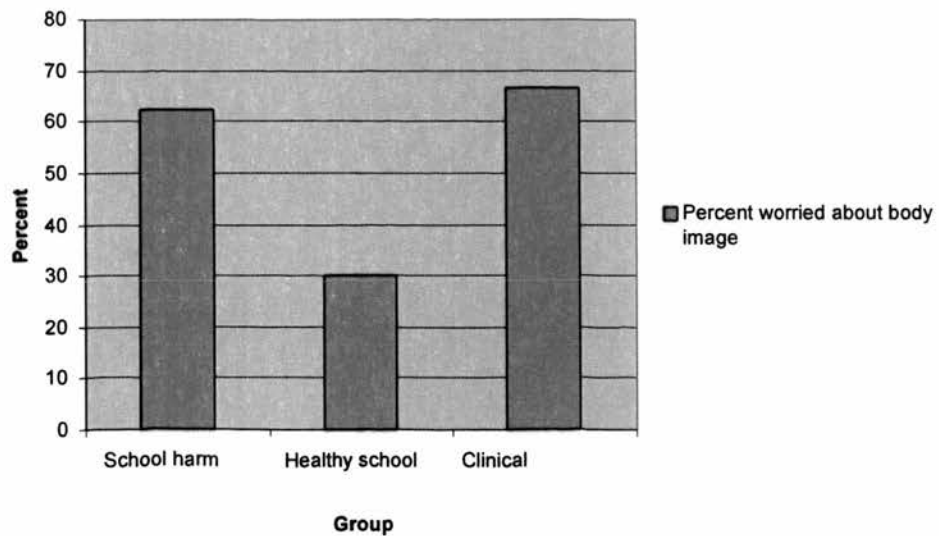
Table 14. Mean Body Image Scores

	School Harm	School Healthy	Clinical
Mean	2.32	0.87	3.00
SD	2.03	1.46	2.42

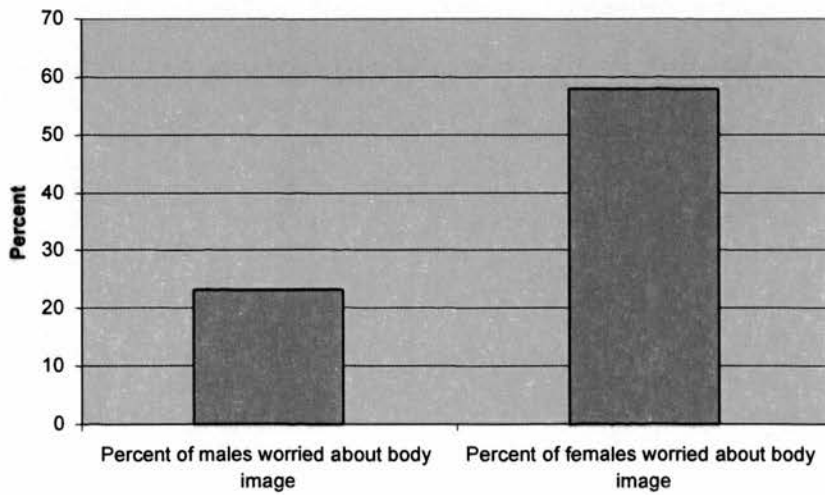
Of the total sample, 41% participants (N=90) responded that they were concerned about their body image. Percent of participants worried about body image as split by group can be seen in Graph 8.

57.9% (N=66) of females were worried about the way they looked, while 23.1% (N=24) of males had body image concerns. Body worry as split by gender can be seen in Graph 9.

Graph 8: Percent of Participants Concerned About Body Image



Graph 9: Percent of Sample with Body Image Concerns Split by Gender



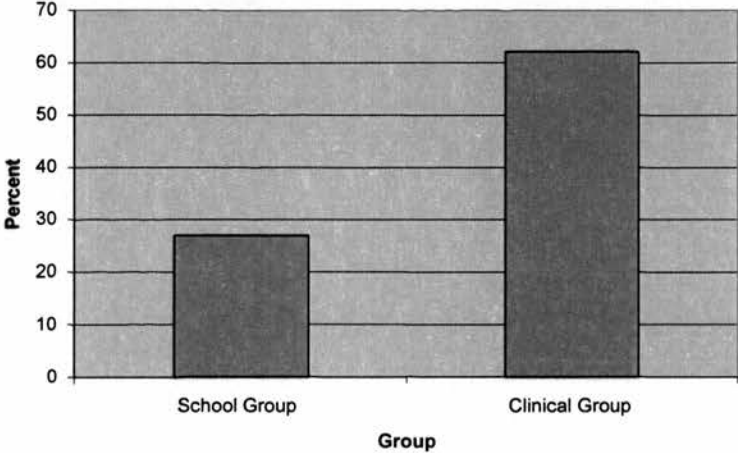
Self-Harm Inventory

A self-harm inventory was administered to determine the frequency and severity of self-injurious behaviours in those who indicated that they had deliberately harmed themselves. It asked participants to record the type of self-harm behaviours they had carried out in the past year/past week, as well as how often and how serious these were.

66 participants indicated they had deliberately harmed themselves at some point in their lives. Of these, 31.8% (N=21) were female and 68.2% (N=45) were male.

62% of individuals from the clinical sample reported harming themselves, while 27% of the school sample admitted to engaging in self-harm (see Graph 10).

Graph 10: Percentage of Group engaging in Self-Harm



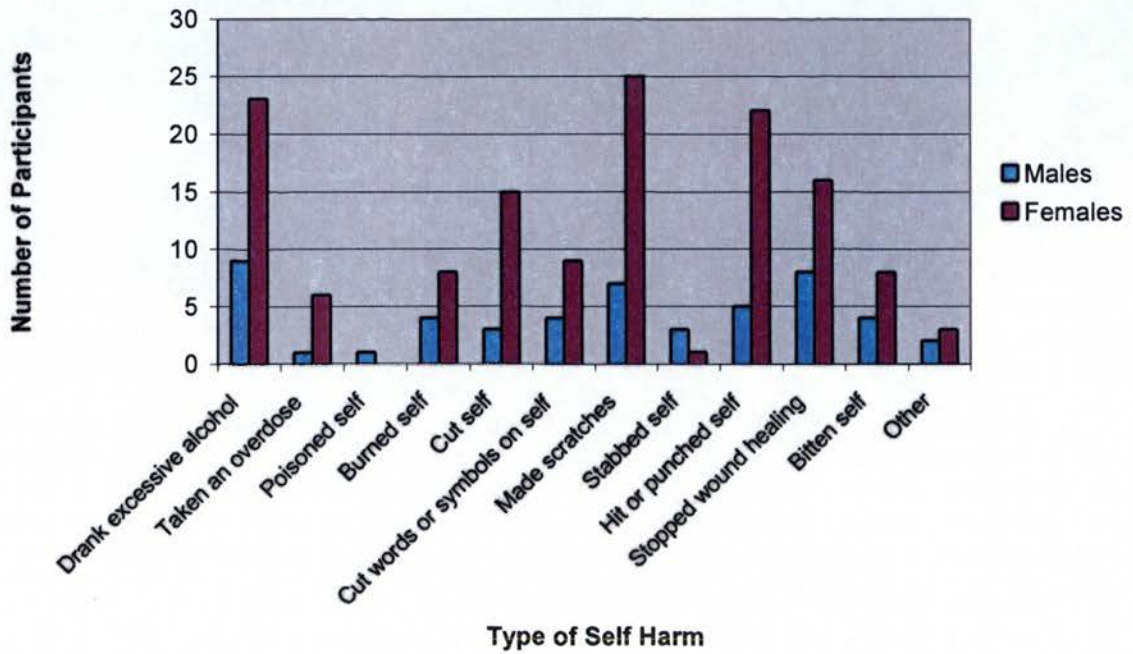
Data on the type, frequency and severity of harm were analysed. Type of self-harm utilised over the past year as split by gender, and whether or not the individual was part of the clinical group, are shown in Graphs 11 & 12 respectively.

The most common methods of self-harm were drinking excessive alcohol and making scratches to the skin. Two participants reported carrying out acts not included on the inventory, which were punching a wall and hitting their head off a wall.

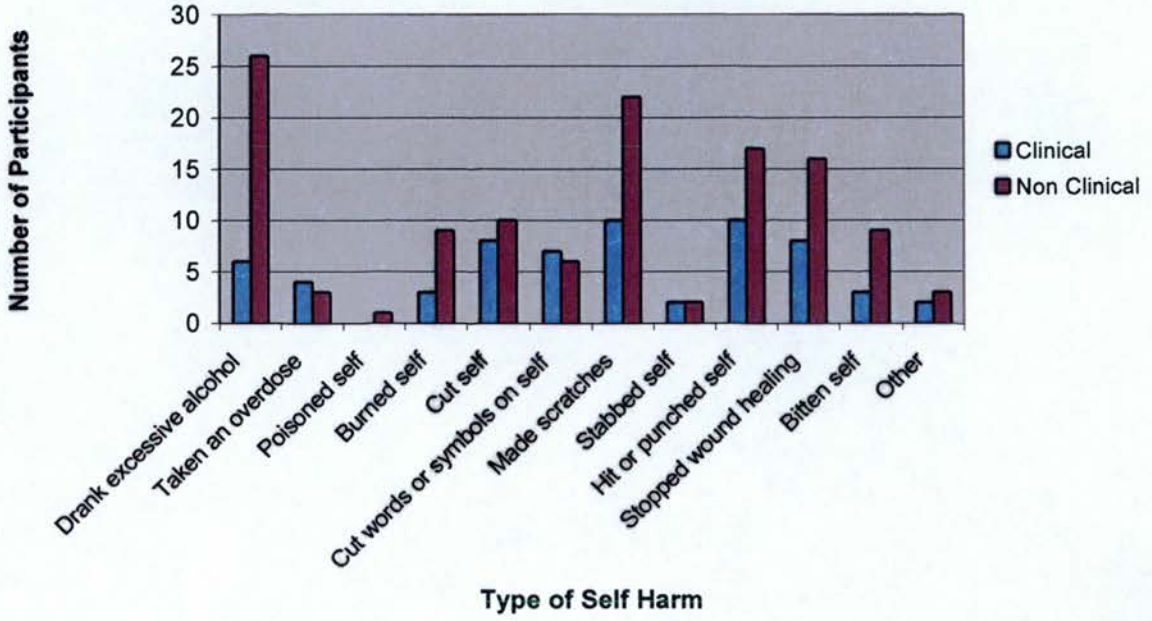
The severity of the self-injurious behaviours reported were ascertained by asking participants to rate the seriousness of each act of self-harm they had engaged in over the past year. Graph 13 shows the number of people who carried out self-harm that was either not at all serious, quite serious, moderately serious, very serious or extremely serious.

Over the past year, participants were most likely to carry out a self-injurious behaviour between two and 10 times (see Graph 14).

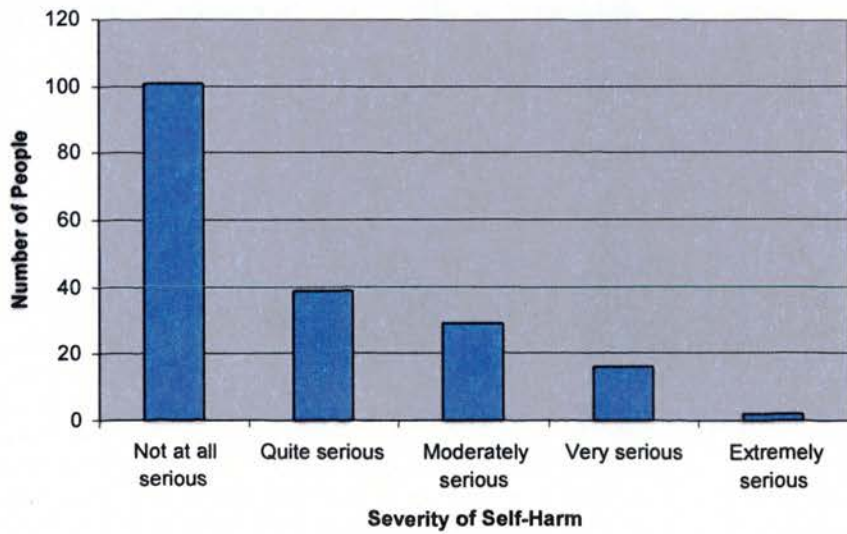
Graph 11: Types of Self Harm Engaged in Split by Gender



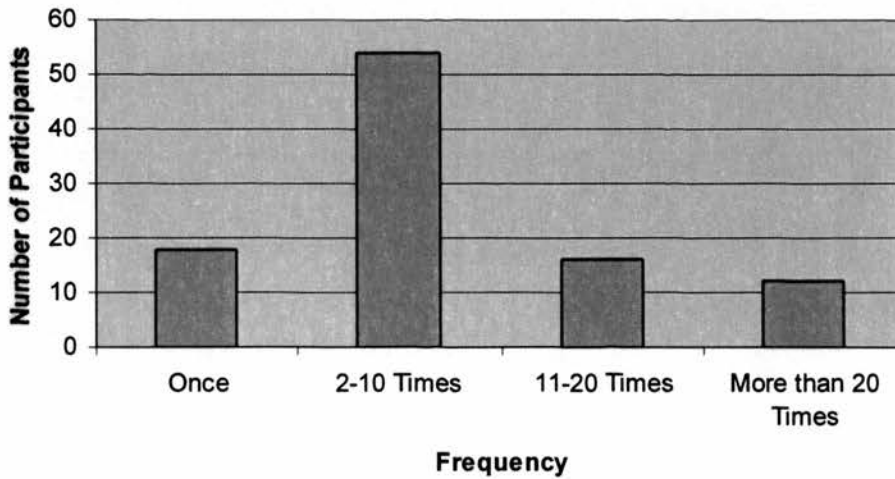
Graph 12: Types of Self Harm Engaged in Split by Clinical Contact



Graph 13: Severity of Self-Harm over the Past Year



Graph 14: Frequency of Self-Harm



Self-Injury Motivation Scale-II

The SIMS-II comprises a 39-item questionnaire, with each item being a motivation for self-harm and belonging to one of six motivational sub-scales.

Participants who indicated they had previously deliberately harmed themselves were asked to rate how often they used each motivation, on a scale of 0 (never) to 10 (always).

Osuch et al (1999) reported a correlation between higher total SIMS scores and higher frequencies of self-injurious behaviour. However, in the present study it was noted

that often participants who indicated a lower number of episodes of self-harm would have a large number of motivations, while others who frequently harmed would only indicate one or two motivations, thus giving them a lower overall score. It was therefore decided that each participant's scores on the 6 motivational subscales would then be transformed into a percentage of their overall score to enable comparisons between the subscales and how often each motivation was utilised.

All scores gained for the SIMS were highly skewed, due to the large number of people who reported they did not utilise each sub-scale. As such, there was little to be gained from transforming the data, as it would still have been skewed due to the large number of answers with no variance. Means for each motivation can be seen in Table 15.

Table 15. Mean SIMS Scores

	Self-Stimulation	Magical Control	Affect Modulation	Desolation	Punitive Duality	Influencing Others
Mean	23.08	8.09	6.27	1.36	1.18	.56
SD	123.44	20.25	18.39	6.77	6.04	2.87

The most often cited motivation for self-harm was self-stimulation. Figure 4 shows the mean number of people using each motivation as an overall percent of self-harm motivation. Figures 5 and 6 show the distribution of motivations when participants were separated by clinical population versus community sample.

A Mann-Whitney Test showed that there were no significant differences across groups.

Figure 4: Distribution of SIMS-II Sub-Scales

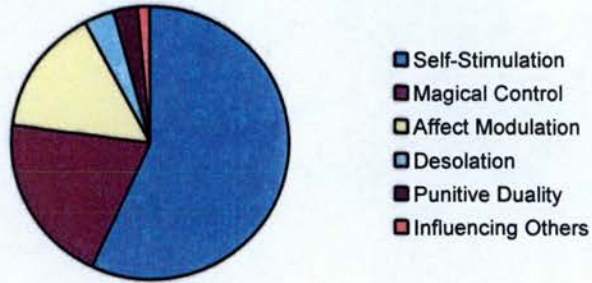


Figure 5: Distribution of SIMS-II Sub-scales in School Group

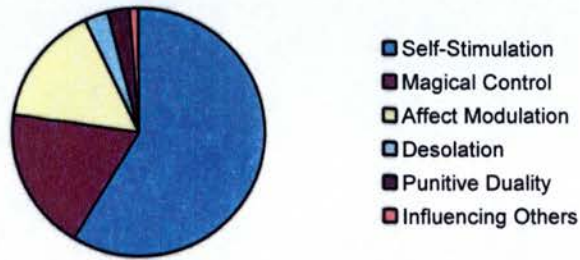
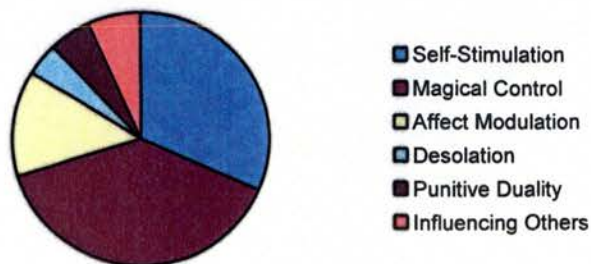


Figure 6: Distribution of SIMS-II Sub-scales in Clinical Group



Inferential Statistics: Testing the Hypotheses

Hypothesis 1

- 1 (a) *There will be differences in levels of anxiety in participants from a clinical group, a non-clinical self-harm group and a non-harming community group.*

Within the groups, an analysis of variance showed that mean anxiety scores differed significantly across all groups ($F = 20.13$, $df = 2,213$, $p < .0001$).

A Bonferroni post hoc analysis revealed significant differences in mean scores across all comparisons.

Rejection of the null hypothesis: Results showed significant differences in anxiety scores, with those from a clinical group being more anxious than those from a non-clinical self-harm group, who in turn were more anxious than a non-harming community group. Hypothesis 1 (a) was therefore upheld.

- 1 (b) *There will be differences in levels of depression in participants from a clinical group, a non-clinical self-harm group and a non-harming community group.*

Depression scores were positively skewed. A non-parametric equivalent of the ANOVA (Kruskal-Wallis test) was carried out which showed significant differences across all groups ($\chi^2 = 16.3$, $df = 2$, $p < .001$).

As mentioned previously, data were transformed allowing an ANOVA to also be carried out which showed significant differences across groups ($F = 7.336$, $df = 2$, 213 , $p = .001$).

A Bonferroni post hoc analysis then showed the only significant difference to be that the healthy school were less depressed than the clinical group.

Retention of the null hypothesis: Results indicated that there were not significant differences in depression scores between those in a school group. Depression scores were significantly different between the clinical sample and the healthy school sample, although did not differentiate between those from the school sample who harmed and those who did not. As such the null hypothesis was retained and hypothesis 1 (b) was not upheld.

1 (c) Rates of self-harm will be higher in those with psychopathology.

This hypothesis was tested using an independent samples T-Test, looking for significant differences in anxiety and depression scores depending on whether or not self-harm was reported.

Participants were not split into the three groups, but rather the whole sample was analysed (see Table 16 scores on questionnaire measures). Anxiety scores were significantly different in the harm group compared to the non-harm group ($t=5.609$, $df=214$, $p<.001$). Depression scores also showed significant differences between the two groups ($t=3.191$, $df=191$, $p<.002$).

Table 16. Questionnaire Scores for Harm and Non-Harm Groups.

	Harm Group	Non-Harm Group
<i>N</i> (% of Participants)	66 (30.3%)	152 (69.7%)
Male (% of Group)	45 (68.2%)	69 (45.4%)
Female (% of Group)	21 (31.8%)	83 (54.6%)
Mean Anxiety Mean (SD)	9.08 (4.14)	6.31 (2.93)
Mean Depression Score (SD)	4.85 (3.27)	2.99 (2.67)
Internal-functional Emotion Regulation Mean (SD)	13.42 (3.44)	13.31 (3.80)
Internal-dysfunctional Emotion Regulation Score (SD)	13.40 (4.13)	9.31 (2.92)
External-functional Emotion Regulation Mean (SD)	16.64 (4.04)	16.44 (4.67)
External-dysfunctional Emotion Regulation Mean (SD)	9.68 (3.20)	8.17 (2.69)
BDDQ Mean (SD)	2.70 (2.13)	.88 (1.48)

Rejection of the null hypothesis: Anxiety and depression scores were significantly higher in those who reported engaging in self-harm as compared to those who did not. On the basis of these results it was posited that those who reported higher levels of anxiety and depression were more likely to self-harm than those who did not, and the null hypothesis was rejected. As such, hypothesis 1 (c) was upheld.

Hypothesis 2

2 (a) There will be differences in the type of emotion regulation strategies most often used by participants from a clinical group, a non-clinical self-harm group and a non-harming community group.

In order to test the hypothesis, emotion regulation sub-scales were analysed in relation to whether participants were part of the school harm group, school healthy group or clinical group.

Two of the emotion regulation sub-scales (external-functional and internal-functional) did not show significant differences across groups.

An analysis of variance showed the internal-dysfunctional scores to be highly significant across all groups ($F = 33.452$, $df = 2, 215$, $p < .001$), with these strategies being utilised by the clinical group most, followed by the school-harm group.

Scores on the external-dysfunctional sub-scale were not normally distributed. A non-parametric equivalent of the ANOVA (Kruskal-Wallis test) was therefore carried out and showed significant differences across all groups ($\chi^2 = 8.887$, $df = 2$, $p = .012$).

However, because this test did not meet parametric assumptions a more detailed analysis could not be carried out to determine levels of significance. As mentioned previously, data were transformed allowing an ANOVA to be carried out, which was again significant ($F = 5.705$, $df = 2, 217$, $p = .004$).

Post hoc analysis (Bonferroni) revealed the significant differences to lie between the school harm group and the school healthy group, and the school healthy group and the clinical group.

Retention of the null hypothesis: Significant differences were found in the types of emotion regulation strategies between the healthy school group and the other two groups (school harm group and clinical group), but not between the two school groups or the two harming groups. Hypothesis 2 (a) was not, therefore, upheld.

2 (b) Dysfunctional emotion regulation strategies will be more likely to be utilised by those reporting self-harm

Results were analysed across the whole sample looking at emotion regulation subscales and self-harm. An independent samples t-test confirmed that the significant differences were found in the internal-dysfunctional ($t=8.346$, $df=216$, $p<.001$) and external-dysfunctional scores ($t=3.686$, $df=216$, $p<.001$) but not in the functional subscales.

Rejection of the null hypothesis: Results showed that those who harmed were significantly more likely to have higher dysfunctional emotion regulation scores. The two dysfunctional scales distinguished between those who harmed and those who did not. Hypothesis 2 (b) was therefore upheld, as significant differences were found in the types of emotion regulation strategies used between those who harmed and those who did not.

Hypothesis 3

3 (a) Body image scores will differ between a clinical group, a non-clinical self-harm group and a non-harming community group.

Half of all participants who reported being concerned about their body image also engaged in self-harm. Of those who did not worry about body image, only 16.4% had harmed themselves at some point.

As mentioned previously, body image scores were skewed and could not be transformed to a normal distribution. As the data did not meet the assumption of homogeneity of variance, a parametric test, such as an ANOVA, could not be carried out to examine mean body image scores across the three groups.

A Kruskal-Wallis Test showed a significant relationship between body image and group ($\chi^2(2) = 33.943; p < .01$).

Rejection of the null hypothesis: Results showed that body image scores differed significantly across all three groups. Because data did not meet parametric assumptions, a post hoc analysis could not be carried out to determine exactly where these differences lay. However, a significant difference was found and Hypothesis 3 (a) was therefore upheld.

3 (b) *Negative body image will be associated with self-harm*

A crosstabulation was carried out between those who reported harming themselves and body worry (see Table 17). A Pearson's Chi-Square showed a significant association between the two variables ($\chi^2=28.251$, $df=1$, $p<.001$).

Table 17. *Body image and self-harm crosstabulation*

		Harm		Total
		yes	no	
worry	Yes	45	45	90
	No	21	107	128
Total		66	152	218

In addition, a non-parametric correlational analysis (Spearman's Rho) showed a positive correlation between self-harm and body image ($r = .360$, $p<.001$) indicating that higher body image scores were correlated with engaging in self-harm.

Rejection of the null hypothesis: Results showed that body image was correlated with self-harm, with those who reported self-harm being more likely to disclose body worry. Hypothesis 3 (b) was therefore upheld.

Hypothesis 4

Puberty stage will be a risk factor for self-harm, with those who started either earlier or later than their peers being most likely to self-harm.

As data was nominal in type, a chi-square test was performed (Pearson's Chi-Square).

Results showed no significant differences between stage of puberty and whether or not an individual reported carrying out a self-injurious act.

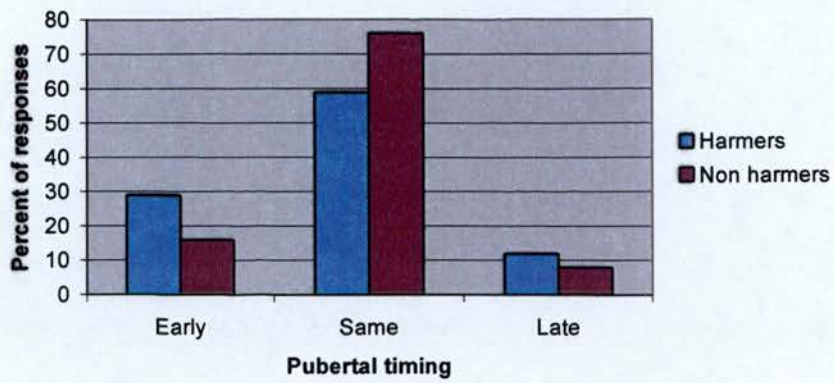
Graph 15 shows the percentage of harmers and non-harmers who reported starting puberty earlier, later or at the same time as their peers.

When further split by gender to see if stage of puberty was perhaps more likely to be associated with self-harm in females, results were still non significant.

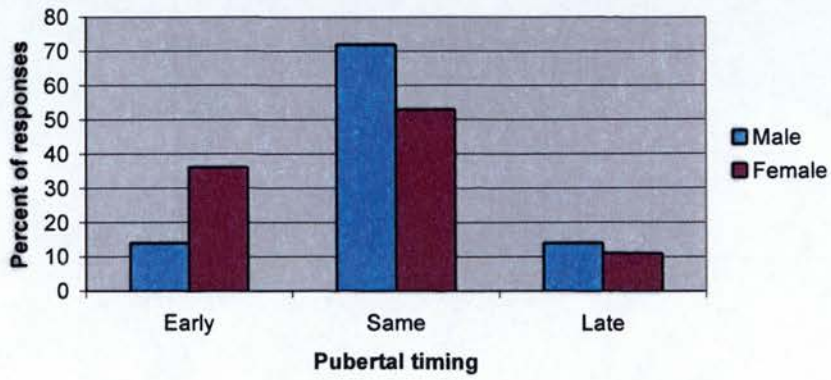
However, a high percentage of females (36%) who had harmed themselves did report starting puberty earlier than their peers, compared to 19% of non-harming females who reported starting puberty earlier than peers. An equal number of males reported starting puberty earlier and later than their peers (see Graph 16)

Retention of the null hypothesis: No significant associations were found between stage of puberty and self-harm. The null hypothesis was retained and Hypothesis 4 was rejected.

Graph 15: Self-harm and puberty



Graph 16: Gender and puberty



Examination of Risk Factors

Logistic regression analysis was carried out in order to examine risk factors for self-harm.

The results of logistic regression analysis with the dichotomous variables found that variables (timing of puberty, unwanted sexual experiences, gender, body image concerns and being bullied) explained 32.1% of the variance in the dependent variable (self-harm). This result was statistically significant as illustrated by the Chi-Square value. However, the use of the backward stepwise option in logistic regression allowed for closer examination of the relative importance of each variable.

As Table 18 shows, body image concern, being bullied and experiencing unwanted sexual experiences offered the best model for predicting the dependent variable, accounting for 31.6% of the variance. The inclusion of puberty and gender did not significantly increase the variance accounted for, which means they do not have a high predictive value for self-harm. Bullying was found to make the highest contribution to the model, closely followed by body image concerns (as shown by the “change in $-2 \log$ likelihood” statistic shown in Table 18).

Questionnaire scores meeting parametric assumptions were also analysed using logistic regression. Because the dependant variable was dichotomous, and showed the presence or absence of self-harm rather than the frequency, a multiple regression analysis was not carried out.

When logistic analysis was performed with variables from the HADS (anxiety and depression scores) and the emotion regulation questionnaire (internal-functional, internal-dysfunctional, external-functional and external-dysfunctional scores), results showed these variables accounted for 34.1% of variance in self-harm (See Table 19).

The backward stepwise option showed that the two dysfunctional emotion regulation strategies offered the best model for predicting self-harm, accounting for 34% of the variance. As such, the remaining variables had little predictive value for self-harm.

This result was not unexpected when considering that self-harm is listed as an internal-dysfunctional strategy on the emotion regulation questionnaire, and that individuals who utilise internal-dysfunctional strategies are more likely to employ external-dysfunctional than external-functional strategies.

All variables were analysed together (body image, unwanted sexual experiences, pubertal timing, gender, being bullied, and anxiety, depression and emotion regulation scores) and were found to account for 40.1% of the variance in self-harm.

The backward stepwise option showed that the best predictors of self-harm were being bullied, having body image concerns and the use of dysfunctional emotion regulation strategies. Together these three variables accounted for 39% of the variance (see Table 20), and confirmed the results found above.

Table 18. Logistic Analysis: Model Summary for Dichotomous Variables

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	55.037	7	.000
	Block	55.037	7	.000
	Model	55.037	7	.000
Step 2(a)	Step	-.095	2	.953
	Block	54.942	5	.000
	Model	54.942	5	.000
Step 3(a)	Step	-.884	1	.347
	Block	54.058	4	.000
	Model	54.058	4	.000

a A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	208.652(a)	.228	.321
2	208.747(a)	.227	.320
3	209.631(a)	.224	.316

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Model if Term Removed(a)

Variable	Model Log Likelihood	Change in - 2 Log Likelihood	df	Sig. of the Change	
Step 1	worry	-110.278	11.905	1	.001
	gender	-104.742	.832	1	.362
	bullied	-113.895	19.137	2	.000
	puberty	-104.374	.095	2	.953
	sex	-106.220	3.788	1	.052
Step 2	worry	-110.568	12.388	1	.000
	gender	-104.816	.886	1	.347
	bullied	-114.649	20.551	2	.000
	sex	-106.352	3.957	1	.047
Step 3	worry	-112.970	16.309	1	.000
	bullied	-115.348	21.064	2	.000
	sex	-107.053	4.475	1	.034

a Based on conditional parameter estimates

Table 19. Logistical Analysis: Model Summary for Questionnaire Measures

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	54.452	6	.000
	Block	54.452	6	.000
	Model	54.452	6	.000
Step 2(a)	Step	-.001	1	.970
	Block	54.450	5	.000
	Model	54.450	5	.000
Step 3(a)	Step	-.001	1	.971
	Block	54.449	4	.000
	Model	54.449	4	.000
Step 4(a)	Step	-.005	1	.941
	Block	54.444	3	.000
	Model	54.444	3	.000
Step 5(a)	Step	-.151	1	.698
	Block	54.293	2	.000
	Model	54.293	2	.000

a A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	192.157(a)	.246	.341
2	192.158(a)	.246	.341
3	192.159(a)	.246	.341
4	192.165(a)	.246	.341
5	192.316(a)	.245	.340

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Model if Term Removed(a)					
Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	efaffec	-96.079	.001	1	.970
	ifaffec	-96.079	.002	1	.966
	idaffec	-109.499	26.841	1	.000
	anxhads	-96.081	.005	1	.944
	DEPHADS2	-96.133	.108	1	.742
	EDAFFEC2	-98.388	4.620	1	.032
Step 2	ifaffec	-96.080	.001	1	.971
	idaffec	-109.568	26.978	1	.000
	anxhads	-96.082	.006	1	.941
	DEPHADS2	-96.134	.109	1	.741
	EDAFFEC2	-98.391	4.625	1	.032
	Step 3	idaffec	-109.940	27.720	1
anxhads		-96.082	.005	1	.941
DEPHADS2		-96.139	.119	1	.730
EDAFFEC2		-98.487	4.815	1	.028
Step 4	idaffec	-114.249	36.333	1	.000
	DEPHADS2	-96.158	.151	1	.698
	EDAFFEC2	-98.564	4.963	1	.026
Step 5	idaffec	-118.364	44.413	1	.000
	EDAFFEC2	-98.687	5.059	1	.025

a Based on conditional parameter estimates

Table 20. Logistical Analysis: Model Summary for all Variables

Omnibus Tests of Model Coefficients				
		Chi-square	df	Sig.
Step 1	Step	66.388	13	.000
	Block	66.388	13	.000
	Model	66.388	13	.000
Step 2(a)	Step	.000	1	.991
	Block	66.388	12	.000
	Model	66.388	12	.000
Step 3(a)	Step	-.303	2	.859
	Block	66.085	10	.000
	Model	66.085	10	.000
Step 4(a)	Step	-.125	1	.724
	Block	65.960	9	.000
	Model	65.960	9	.000
Step 5(a)	Step	-.236	1	.627
	Block	65.723	8	.000
	Model	65.723	8	.000
Step 6(a)	Step	-.558	1	.455
	Block	65.165	7	.000
	Model	65.165	7	.000
Step 7(a)	Step	-.535	1	.464
	Block	64.630	6	.000
	Model	64.630	6	.000
Step 8(a)	Step	-1.962	1	.161
	Block	62.668	5	.000
	Model	62.668	5	.000

a A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	176.892(a)	.296	.409
2	176.892(a)	.296	.409
3	177.196(a)	.295	.408
4	177.321(a)	.295	.407
5	177.557(a)	.294	.406
6	178.115(a)	.292	.403
7	178.651(a)	.290	.400
8	180.612(a)	.282	.390

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 20 (continued).

Model if Term Removed(a)					
Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 6	worry	-90.869	3.623	1	.057
	bullied	-91.553	4.990	2	.082
	sex	-90.108	2.100	1	.147
	efaffec	-89.326	.536	1	.464
	idaffec	-96.340	14.564	1	.000
	EDAFFEC2	-90.616	3.117	1	.077
Step 7	worry	-91.071	3.491	1	.062
	bullied	-91.684	4.718	2	.095
	sex	-90.311	1.972	1	.160
	idaffec	-96.432	14.213	1	.000
	EDAFFEC2	-90.862	3.074	1	.080
Step 8	worry	-92.156	3.700	1	.054
	bullied	-92.680	4.749	2	.093
	idaffec	-98.323	16.034	1	.000
	EDAFFEC2	-91.756	2.900	1	.089

a Based on conditional parameter estimates

Inferential Statistics: Additional Significant Results

A Pearson's correlational analysis was carried out to examine associations between all scores meeting criteria for parametric tests (the emotion recognition sub-scales and the HADS sub-scales).

Significant positive correlations were found between the following variables:

- Anxiety and internal-dysfunctional emotion regulation strategies, so those with higher levels of anxiety were more likely to utilise internal dysfunctional emotion regulation strategies ($r = .616, p < .001$).
- Anxiety and external emotion regulation strategies, so those with higher levels of anxiety were more likely to utilise external-dysfunctional emotion regulation strategies ($r = .294, p < .001$).
- Depression and internal emotion regulation strategies, so those with higher levels of depression were more likely to utilise internal-dysfunctional emotion regulation strategies ($r = .390, p < .001$).
- Anxiety and depression, so those with higher levels of anxiety were also likely to have higher levels of depression ($r = .464, p < .001$)

Significant negative correlations were also found for depression and internal-functional emotion regulation strategies ($r = -.202, p = .005$) and external-functional emotion regulation strategies ($r = -.268, p < .001$), indicating that those who scored

highly on functional emotion regulation strategies were more likely to have lower depression scores.

A Spearman's Rho showed significant correlations between:

- Self-harm and bullying, so those who engaged in self-harm were more likely to report being bullied ($r = .368, p < .001$).
- Self-harm and gender, with being female being correlated with reporting self-harm ($r = -.210, p < .005$).
- Self-harm and body image, with those who reported self-harm being more likely to report body image concerns ($r = .360, p < .001$).
- Self-harm and unwanted sexual experiences, so those who reported unwanted sexual experiences were more likely to self-harm ($r = .217, p < .001$).
- Gender and unwanted sexual experiences, so those who reported unwanted sexual experiences were more likely to be female ($r = -.142, p < .05$).
- Gender and body image, with those worried about body image being more likely to be female ($r = -.353, p < .001$).
- Gender and bullying, with females more likely to report being bullied ($r = -.136, p < .05$).
- Body image and unwanted sexual experiences, so those who reported unwanted sexual experiences were likely to report body concerns ($r = .140, p < .05$).
- Body image and bullying, with those who had concerns about their body image being more likely to report being bullied ($r = .236, p < .001$).

CHAPTER 11: DISCUSSION

This study examined the relationships between self-harm, emotion regulation, body image and timing of puberty in clinical and non-clinical adolescent populations.

It also aimed to establish if motivational differences for self-injurious behaviour were evident between clinical and non-clinical populations.

This final chapter discusses the results of the study and examines their significance and clinical implications. Limitations of the study are considered.

Interpretation of the Results

Summary of hypothesis testing

- Anxiety levels were significantly different between clinical, school self-harming and school non-harming groups.
- Significant levels of depression were found between the clinical and non-harming school group, although scores were not significantly different between the two self-harm groups.
- Those who self-harmed (regardless of if they came from a clinical or community sample) had significantly higher levels of anxiety and depression.

- Significant differences were found in the types of emotion regulation strategies used between the school non-harmers and the clinical group, but not between the two school groups or two self-harm groups.
- Those who self-harmed (regardless of if they came from a clinical or community sample) were more likely to utilise dysfunctional emotion regulation strategies.
- Negative body image was correlated with self-harm.
- Timing of puberty was not a risk factor for self-harm.
- Being bullied and having body image concerns were the best predictors of self-harm.
- The results found that there was no significant difference in motivation to self-harm between clinical and non-clinical populations.

Relating the Findings of the Current Study to Published Research

Prevalence rates

As noted previously, it is notoriously difficult to determine rates of self-harm, due to the number and variance in definitions. Prevalence rates of self-harm reported in the literature can vary between 1.5% for adolescent males in a community sample (Salmons and Harrington, 1984) to 61% for adolescent psychiatric inpatients (DiClemente, Ponton & Hartley, 1991).

Additionally, these numbers are thought to present a distorted picture, as most rely on hospital admissions or psychiatric populations (Rodham, Hawton & Evans, 2005). It has been suggested that the only way to gain an accurate picture of rates of self-harm is to carry out community based population studies (Rodham, Hawton & Evans, 2005).

The current study considered adolescents from both a clinical and a community sample to enable a comparison of these groups in terms of type, frequency and motivation for self-harm, as well as to allow for the exploration of links between body image, pubertal timing, emotion regulation and psychopathology.

Results showed that over the whole sample there was a 29.9% prevalence rate of self-harm. The school group reported a prevalence rate of 26.9%, while within the clinical group this figure was 61.9%.

As such, rates reported in this study outnumber those cited in previous research for both clinical (Hawton et al. 2001) and non-clinical populations (Ross & Heath, 2002).

Figures for the clinical sample are very similar to those posited from an adolescent inpatient population, where up to 61% have been found to engage in self-harm (DiClemente, Ponton & Hartley, 1991).

This figure is particularly alarming when the composition of the clinical group is considered, with 10 of the 21 participants (47.6%) being recruited from the school sample, and as such not necessarily being in current contact with mental health services.

In citing reasons for self-harm, many participants reported boredom as a precipitant. It was felt that the use of alcohol may be a means of relieving this boredom, rather than a deliberate act of self-harm due to the individual being in a psychologically disturbed state (as noted in definition of self-harm). Therefore, in future studies it might be beneficial to remove alcohol use from the criteria for self-harm in order to accurately establish prevalence rates for self-injurious acts precipitated by distress.

Additionally, some acts included on the self-harm inventory, such as burning or scalding yourself, stopping a wound from healing and even scratching yourself, could happen without deliberate intention and may have served to elevate the prevalence rates in the current study.

Psychopathology and self-harm

Psychopathology was found to differentiate between groups, with those engaging in self-harm showing significantly higher levels of anxiety and depression than those who did not. Findings from previous literature are concurrent with these results linking self-harm to anxiety and depression (Kumar, Pepe & Steer, 2004; Kerfoot et al., 1996).

Anxiety levels were found to be higher in the school harm group than the school non-harming group, and higher in the clinical group than the school harm group. This suggests a hierarchy of anxiety was present, with the highest rates differentiating between those who harmed and had clinical contact and those who did not.

Depression scores were not significantly higher in the clinical group than in the school harm group, indicating that there may be substantial numbers of untreated depression in the community sample. This may be due to the diagnostic issues discussed earlier, whereby depressed adolescents may not exhibit a typical presentation and as such may not come to the attention of psychological or psychiatric services.

Although both depression and anxiety scores were significantly higher in those who self-harmed than those who did not, based on previous findings a stronger link between self-harm and depression would have been expected than with anxiety (Ross & Heath, 2002). This was not the case in the current study, with anxiety scores being higher than depression scores over all three groups.

One explanation for this is that depressed adolescents do not always meet DSM-IV criteria for depression (Harrington et al., 1998), as mentioned above. However, it has also been suggested that the act of self-harm might serve to reduce symptomatology in those with negative affect. Horrocks & House (2002) claim that although one half to three quarters of people who self-harm show depressive symptomatology, this often drops within a few days of the self-injurious act being carried out. As a consequence, there may not be a consistent level of depression, which cannot therefore be detected using measures only measuring a single point in time.

Finally, due to the timing of the research, it may be that anxiety levels were elevated due to examinations¹ and preparation for either moving class or leaving to go to

¹ To help control for this half on the questionnaire were administered before the examination period and half afterwards.

university (although these are normal parts of adolescent life and as such should not be dismissed as unusual).

Body image and self-harm

Poor body image has been linked to self-injurious behaviour (Evans, Hawton & Rodham, 2005), especially in females (Levine & Smolak, 2002), although few studies have explored this relationship.

It is thought that negative body image may facilitate self-harm by allowing dissociation and detachment from the body, which can then allow a higher degree of pain to be tolerated by the individual, although the current study did not include a measure to directly question this link.

Results showed that those who deliberately harmed themselves were significantly more likely to have body concerns than those who did not. This suggests that further research may establish a link whereby levels of negative body image differentiate between those self-harmers who present to clinical services and those who do not.

As mentioned previously, body image has a huge impact on the global self-esteem of adolescents and has been found to correlate highly with negative affect and psychopathology (Levine & Smolak, 2002). The current finding of a link between body image and self-harm is therefore not surprising when the already robust finding between self-harm and psychopathology is taken into consideration.

However, the finding that body image, along with being bullied (which often has physical attributes at the core) is the best predictor of self-harm than gender, timing of puberty and negative sexual experiences, suggests that body image is a particularly salient component of self-harm which requires further investigation.

Although a gender difference was not found between those who harmed and those who did not, a higher proportion of females who harmed were worried about body image than males, with 58% of female harmers being concerned about the way they looked compared to 23% of male harmers.

Body image concerns were not found to be significantly related to timing of puberty, although previous literature suggests that the increase in body fat around this time would act as a risk factor for females (Levine & Smolak, 2002).

Because the current study only asked participants if believed they started puberty earlier or later than their peers, it may still be that there is a link between pubertal changes and body image in those who started puberty at the same times as their peers, and further research would need to be carried out to fully explore these links.

Additionally the current study did not ascertain the strength of belief participants held regarding body image, and it may be that those who started puberty earlier or later than their peers may hold a stronger, more rigid, negative belief about their appearance.

Significant correlations were found between negative body image and unwanted sexual experiences, and body image and bullying. Neither of these associations are surprising when it is considered that bullying often takes the form of verbal abuse based on physical characteristics, and sexual abuse involves a bodily violation. Both these findings are also supported by existing literature on body image (Silberstein et al., 1989; Neumann, Houskamp, Pollock, & Briere, 1996).

Emotion regulation and self-harm

Functional emotion regulation strategies are said to allow for individuals to adaptively experience and process strong emotions. Conversely, dysfunctional emotion regulation strategies are more likely to be employed by those who avoid or disengage from problem situations (Carver & Scheier, et al., 1983).

The present study found that emotion regulation strategies did not differentiate between clinical and non-clinical self-harmers. However, a significant difference was found in the types of emotion regulation strategies employed by harmers and non-harmers.

Participants who engaged in self-harm were more likely to utilise dysfunctional emotion regulation strategies than those who did not. This suggests that self-harm is used by these individuals as a means of regulating unpleasant emotions, which is consistent with previous research (Evans et al., 2005; Kingsbury, Hawton, Steinhardt & James, 1999).

In addition, those who used functional emotion regulation strategies had significantly lower scores on the depression sub-scale of the HADS, implying such strategies may be a protective factor against depression, although the current study cannot establish a causal link.

Although research into emotion regulation is currently limited (Gross, 1999), especially with regards to exploring its dimensions within different populations, the current study highlights the importance of developing this area further, as the strategies employed by an individual have a significant impact on whether or not they are likely to harm themselves.

Motivation for self-harm

The current study attempted to explore whether or not motivations for self-harm varied across clinical and non-clinical populations.

Self-harm literature suggests that motivation for self-harm may come from the desire to end unpleasant states by regulating negative emotions in a dysfunctional manner (Gratz, 2003). As discussed above, both psychopathology and dysfunctional emotion regulation strategies were significantly higher in a population of self-harmers than non-harmers. However, these results did not indicate differences in these variables between clinical and non-clinical populations.

Self-harm literature also suggests that there may be further motivational incentives behind acts of self-harm, such as to gain the support or sympathy of others (Allen, 1995), to control sexual drives (Doctors, 1981), or through conditioned learning and peer influences (Simpson, 1975; Conterio & Lader, 1988).

Results of the current study indicate that motivations for self-harm did not differ between clinical and non-clinical populations in terms of self-stimulation, affect modulation, punitive duality, desolation, magical control or influencing others.

The non-clinical harm group did indicate higher levels of self-stimulation, although this was not a significant difference. However, when taken into consideration with the types of self-harm included, as discussed previously, it may be that acts such as excessive intake of alcohol may serve the function of providing stimulation and thus relieving boredom in the non-clinical group.

Risk factors for self-harm

Risk factors for self-harm were found to include bullying, negative body image and dysfunctional emotion regulation strategies. Again, previous findings support these results (Sobanski & Schmidt, 2000; Walsh & Rosen, 1988; Hawton & James, 2005), although surprisingly neither gender nor the timing of puberty were found to be predictive of self-harm.

Prevalence rates taken from existing self-harm literature would predict higher rates of self-harm in females than males (Rodham, Hawton & Evans, 2005; Garrison et al., 1993; Gould et al., 1998; Grunbaum et al., 2002). However, it is now becoming more recognised that an increasing number of males are deliberately harming themselves, and this group has shown the highest increase in prevalence over recent years (Hawton et al., 1997). This increase, coupled with problematic methodology, means previous calculations of levels of harm may not be an accurate predictor of self-harm rates, especially in community-based samples.

Studies on puberty have indicated that there is a link between the timing of puberty and negative body image (Simmons & Blyth, 1987). As there is also a well-documented link between negative body image and self-harm (Kostanski & Gullone, 1998; Walsh & Rosen, 1988), the current study aimed to ascertain whether or not a direct link would be present between pubertal timing and self-harm. However, findings did not support that pubertal timing is a risk factor for self-harm. For future research it may be interesting to focus on whether timing of puberty can act as a protective factor when occurring at the same time as others in the peer group.

Depression, and in particular dichotomous thinking style and cognitive rigidity, have been reported to be risk factors for self-harm (Horrocks & House, 2002). Findings suggest there is indeed an association between self-harm and higher levels of depression. A more detailed exploration of depression, cognitive biases and self-harm would add to the body of current self-harm knowledge and would have particular clinical value in informing treatment strategies.

Risk factors documented in the literature that were not examined by this study include peer and media influences, and familial factors such as poor attachment and physical abuse (Horrocks & House, 2002). It may be that if there is a difference in the motivation behind self-injurious behaviour between clinical and non-clinical samples, these factors are involved. Peer influence in particular seems to be a more likely precipitant to self-harm in those from a community sample than for those with higher levels of psychopathology.

Methodological Considerations

Statistical limitations

Results for one of the subscales on the emotion regulation questionnaire (external-dysfunctional), the depression sub-scale of the HADS, all SIMS-II sub-scales and the body image scores were positively skewed.

The lack of normally distributed scores on these measures is not surprising. Items pertaining to the emotion regulation sub-scale included acts such as bullying other people, being physically abusive and trying to make other people feel bad. Not only are participants less likely to admit to carrying out such acts, due to a possible perception that they may be judged negatively or reprimanded, but generally people are less likely to carry out such extreme acts with the same frequency as other items on the scale, for example rumination, advice seeking or exercise.

Similarly, in such a large population, it would not be expected to find high levels of depression and as such many participants from the community sample would have scored very low on this measure.

Those who reported engaging in self-harm were asked to fill in the SIMS-II to explore their motivations to harm. Most participants only indicated a few reasons and some did not fill it in at all. As such, scores were all positively skewed because of the high number of people who rated zero on each of the subscales. For example, although the self-stimulation scores were the highest, only 42 of the 66 participants who indicated they had deliberately harmed themselves cited this as a reason. Transforming the data would not have rectified the large number of scores with no variance and so was not carried out.

Again, with body image scores, a large number of participants reported that they did not have body image concerns. As such a large proportion of the data had no variance and so data were again skewed.

Because these results were not normally distributed, parametric tests could not be carried out without data being manipulated. In the case of the HADS scores and emotion regulation scores, transforming the data was carried out to allow parametric tests to be performed. However, the SIMS-II scores and body image scores could not be transformed as data would still have been skewed due to number of people who had a score of zero.

Limitations of measures

As discussed previously, it may be that symptoms of depression in adolescents are not constant and may disappear once an act of self-harm has been carried out. By using the HADS, which is a present state instrument, the present study could only assess whether or not an individual met criteria for being clinically depressed over the past week. It may be, therefore, that this study does not give an accurate representation of the relationship between depression and self-harm.

As participants were asked about acts of self-harm over the past year, it may have been useful to also ascertain if they had suffered a previous depressive episode during this time. Limitations in establishing accurate depression rates in adolescence have already been discussed in the introductory chapters.

A further diagnostic issue with the HADS is that of an accurate cut off score with adolescents. The present study used those proposed by White et al. (1999), which showed 5% (N=11) of participants met criteria for probable depression. Prevalence rates for depression in adolescents are said to be approximately 1 in 12 (Birmaher, Ryan, Williamson, et al., 1996), which predicts slightly higher rates than the current results show.

In contrast, when using the cut offs proposed for anxiety a prevalence rate of 16% (N=34) was found, which is slightly higher than the 13% the literature suggests would be expected (Schaffer, Fisher, Dulkan., et al., 1996). However, it must be noted that

prevalence rates for anxiety have varied widely in the literature and can range from between 2.6%, and 41.2% (Cartwright-Hatton, McNicol & Doubleday, 2006).

White, Leach, Sims, Atkinson & Cottrell (1999) carried out their research into cut off scores with a both a community and school sample. However, in their study the clinical sample was relatively small and there was an extremely small number of participants overall who presented with anxious symptomatology (N=7).

As a result, it may be that these levels are slightly high for depression and slightly low for anxiety thresholds in adolescents, although further research into this area would need to be carried out to explore this. However, it must be noted that it is also possible that these are accurate cut off levels, and that the present sample showed slightly higher and lower rates of anxiety and depression respectively.

As mentioned, scores on the SIMS-II were all highly skewed, with many participants not rating any of the motivations on the SIMS-II sub-scales. This highlights the possibility that this measure was not accurately measuring self-harm motivation.

Introductory chapters highlighted the role of peer influences, familial influences, media influences and cogitation effects (Walsh & Rosen, 1985) on self-harm in recent years. These motivations may be particularly salient in those who present with self-harm in the absence of psychopathology, such as those from a schools group.

The actual score gained from the SIMS-II did not correspond with the frequency of self-injurious behaviour, as claimed by Osuch et al. (1999). This meant that a higher

score on the SIMS-II did not indicate more frequent or serious self-harm but rather indicated that the individual simply rated more motivations behind the act than some other participants. This led to the present study giving participants a score on each of the SIMS-II sub-scales, which was a percent of their overall self-harm motivation.

Osuch et al (1999) recognised that this measure had weaknesses and in particular that it should be tested with more diverse populations to gain a full spectrum of motivations. Additionally, they add that the SIMS-II requires to be supplemented with structured interviews, concurrent historical reports and biological measures in order to fully validate this measure as a useful tool.

The SIMS-II may be more useful as clinical aid than for the purpose of a research tool, helping clinicians and patients explore and discuss different motivations. For future research a more comprehensive measure of self-harm motivations with a different scoring mechanism would be beneficial.

Limitations of sample size

Meeting the required sample size was found to be problematic. The projected number of participants required in each group was 26.

The study relied on psychological and psychiatric services as well as the mental health youth project, Penumbra, to recruit clinical participants in the Borders.

NHS Borders child and adolescent community mental health team (CAMHT) was also contacted regarding the study, although they were unable to help as their service does not accept referrals for those aged 16 and over.

Adult psychology and psychiatry services in the Borders have historically only accepted referrals for individuals aged 18 and over. Although psychological services will now accept referral for persons aged 16 and over, very few are made. In the year 2004, only 4% of referrals fell into the 16-18 age group (N=21 of a total of 514 referrals). This rate fell further in 2005 to 1% (N= 9 of 712 referrals). Rates for psychiatry services were similar.

Because of the low number of referrals made to psychiatry services for individuals aged 16 to 18, no participants were recruited through this path. The researcher recruited eight participants through psychological services, with a further three being sourced through Penumbra. Although appointments were offered by the researcher to 17 people on the psychological services waiting lists who were in the required age group, only 59% (N= 10) of these responded, with 35% (N=6) agreeing to participate in the study. Two participants were recruited through psychological services by different therapists.

The study ran into difficulties as only 11 clinical participants were recruited. A further 10 participants from the school sample were added to this group as they indicated they were currently, or had been in the past, in contact with psychology or psychiatry services.

Although this number was still less than the estimated requirement, statistically significant results were achieved despite this shortfall.

Because of high DNA rates (number of people who did not attend appointments) it proved difficult to recruit participants. As discussed, it was not felt that the questionnaire was appropriate to be given to adolescents on waiting lists due to the sensitivity of some of the material.

In order to recruit participants from psychological services, individuals meeting the inclusion criteria had to be first sent an initial appointment with enough notice for them to attend. If they did not attend, then the process of sending out an appointment to someone else had to start again, which was time consuming. If the individual did attend, their suitability to take part could only be assessed once therapy was established.

Recruiting from the clinical sample was not a fast process and future studies may consider carrying out similar research within areas where a large number of individuals within the specified age group are already in clinical contact.

Time constraints

An additional component to the study that could not be included due to time constraints was the inclusion of a semi-structured interview with participants.

This would have allowed for a fuller, more detailed, exploration of participants' self-injurious behaviours and the motivations behind these. Participants could have been questioned regarding precipitants to self-harm, the last episode of self-harm, whether boredom was a factor, as well as issues such as previous episodes of depression.

Additionally the strength of belief in negative body image could have been ascertained, which may have been beneficial, as mentioned above. All of these areas would have added important information pertaining to the current study.

As it was not felt appropriate to give the questionnaire to clinical participants if they were not receiving a current therapeutic intervention, the numbers achieved in this study were affected by time constraints. As there were no 16 to 18 year olds currently being seen by therapists from psychological services, the researcher was forced to request the help of other agencies and send appointments to those meeting inclusion criteria from the psychology waiting list.

The process of applying for, and receiving, ethical approval was timely and delayed data collection. Had there been more time to collect data, recruitment from other areas could have been considered for the clinical sample, particularly in areas such as Lothian NHS where there is a dedicated service for adolescents, which is lacking in NHS Borders.

Although there was a relatively high response rate for those patients who attended therapeutic sessions with the researcher (N=6), there was a higher number of people who did not attend appointments or declined to take part (N = 12).

It is unknown how many people were asked to consider taking part by Penumbra who then declined. A higher response rate may have been achieved with individuals attending Penumbra if the researcher had been able to attend a drop-in session to give information verbally and allow for them to ask questions. Unfortunately, due to time constraints this was not possible.

Gaskell, Wright & O'Muircheartaigh (1993) state that the wording on questionnaires can affect response rates. Although the study attempted to gain adolescents' views on the questionnaire before it was distributed, only eight adolescents were able to give their opinions and these may not have been representative of the views of their cohort.

If more time had been available, a pilot study would have been carried out to assess the suitability of the measures used, which would have highlighted some of the methodological issues encountered with the questionnaire measures described above.

Time constraints also meant that questionnaires distributed to the school sample were given out either just before, or just after, examinations. This meant that in the second wave of questionnaires those at the higher end of the age range had left school and a new intake of younger participants had taken place, resulting in the distribution of ages being positively skewed. For those given the questionnaire before their exams, a higher level of anxiety scores may have been present.

As each school was only visited once, those who were not present on the day the research took place were not included in the study.

Bjarnason, Thorlindsson & Manifest (1994) state that self-harm is common in those who truant, and if time had allowed an attempt would have been made to survey all pupils in the relevant age group, unless they did not meet inclusion criteria.

Design limitations

As mentioned previously, higher prevalence rates than the existing literature would suggest were found in the current study. It would have been beneficial to include a definition of deliberate self-harm in the questionnaire measure. It may have been the case that some of the adolescents were confused by the self-harm inventory used. Some of the items could happen accidentally, such as being burnt or scratched, and without the deliberate intention to harm due to distress. A number of returned questionnaires reflected this possibility, with some participants stating that they had not deliberately harmed themselves, then subsequently indicating on the self-harm inventory that they had. These participants were not rated as being individuals who had deliberately harmed themselves when analysing data.

Although the current study was more concerned with the links between variables, such as body image and emotion regulation, a more accurate picture of the frequency and type of self-harm may have been gained by including such a definition.

Clinical Implications

Although schools were offered a range of self-help leaflets and the opportunity for the researcher to go into schools to either give informal advice or speak to the pupils on a range of topics, all three schools declined this offer.

It may be that because self-harm is so often a secretive act, and does not come to the attention of professionals (Suyemoto, 1998), schools are unaware of the need for such interventions. Psychology and psychiatry services therefore have a responsibility to raise the awareness of such issues (Hawton et al. 2002).

Gratz (2003) states that risk factors are particularly important in the development of prevention and treatment strategies in self-harm. The current study highlights that being bullied, having body image concerns and the use of dysfunctional emotion regulation strategies are all predictive of self-harm in both clinical and community samples. The establishment of these links allows for such variables and their impact to be considered when working with adolescents, especially as clinicians need to be aware that adolescents may have difficulty disclosing such issues.

Problems encountered gaining the required sample size from a clinical population have already been discussed. High rates of DNA and low referral rates for adolescents within psychology and psychiatry services in NHS Borders indicated that service provision for this population was not adequate.

Adolescents are recognised as being at risk of depression and self-harm (Horrocks, 2002; Kerfoot et al. 1996) yet the low number of referrals to services in the Borders area indicated that these individuals were not coming to the attention of services.

Young people are more likely to turn to friends for help rather than relatives, teachers or doctors (MHF, 2006; DeLeo & Heller, 2004) and often fail to disclose such behaviour when asked (Suyemoto, 1998). Had the research been carried out in an area with a designated adolescent service, results may have differed significantly.

In order to address these issues, the need for awareness campaigns targeted at young people, as well as professionals and parents, are vital. Hawton et al. (2002) emphasise the need for school based psycho-education programmes on a range of mental health topics, as well as routine screening of high-risk adolescents as a preventative strategy for self-harm. This is particularly important in light of the association between suicide and previous untreated episodes of self-harm (Hawton et al. 2002).

Future Research

Despite the methodological constraints of the current study and small clinical sample size, it has highlighted a number of areas that require further research.

One important question that remains is 'do adolescents from clinical and non-clinical populations differ in their motivations for self-harm'? Results have indicated that

these groups differ in the way they regulate their emotions, the level of concern they have with their body image and levels of psychopathology. However, the present study was unable to ascertain whether or not these factors contributed to differences in reasons why these individuals decide to harm themselves.

Results did not show differences in self-harm motivation between clinical and community samples. However, in light of the methodological weaknesses of the measure used to study this, and its exclusion of factors such as cogitation effects, familial influences and peer relationships, which have all been linked to self-harm (Hawton & James, 2005; Walsh & Rosen, 1985) a more comprehensive review of this area is required.

More research is required comparing clinical and community samples in terms of self-injurious behaviour. If these groups can be differentiated it may be that the differences lie in the type and frequency of self-harm and not the motivations behind them.

The present study indicated that self-stimulation was more often used in a community sample, although this was not a significant result. However, it suggests that if a future study were to be carried out with equal sample sizes, a difference may be found between levels of distress and intent to harm, with those in a community sample being motivated by boredom and thrill seeking more often than those in the clinical sample.

The current study identified an association between self-harm and body image, and further research needs to be undertaken to identify the nature of this relationship and

to try to establish causal links. The inclusion of variables such as social comparison, quality of peer and family relationships, and the strength of belief would increase understanding of why people with negative body image are more likely to self-harm (Thompson et al. 1999; Levine & Smolak, 2002; Cattarin et al. 2000).

In addition, it would be interesting to see if those with body concerns who self-harm do indeed have lowered a pain threshold which in turn may be related to dissociation and emotion regulation.

Although the timing of puberty was not significantly associated with a propensity to self-harm, or with body image concerns, it is felt that further research into this area is required, again because of the small number of clinical participants. As mentioned, it would also be interesting to determine whether pubertal timing can act as a protective factor for self-harm in those who did not start puberty earlier or later than their peers.

Conclusion

The current study attempted to examine self-harm in clinical and non-clinical populations. It aimed to determine if such behaviours were related to body image, emotion regulation, timing of puberty and psychopathology. Furthermore, it was hoped the study would provide insight into the motivations behind, and risk factors for, self-harm between clinical and non-clinical participants.

To conclude, this study found that those who self-harmed were more likely to have higher scores on measures of body image and psychopathology, and were more likely to utilise dysfunctional emotion regulation strategies.

Those from a clinical population were likely to have higher scores on measures of anxiety, function emotion regulation strategies and body image than those who harmed themselves from the community sample.

Perhaps due to methodological weaknesses, the present study was unable to find any links between the frequency or type of self-harm, or any difference in motivation to harm, between the two groups.

Being bullied, having body image concerns and utilising dysfunctional emotion regulation strategies were found to be the best predictors of self-harm, which is consistent with previous studies (Hawton & James, 1995; Rosen, Walsh & Rode, 1990, Gross, 1999).

This research study has identified a number of areas for future research, including further exploring motivations to self-harm and clarifying the links between body image and self-harm.

Finally, the present study highlighted the need for a more proactive strategy incorporating psycho-educational information to increase awareness and address the growing problem of self-harm in adolescents.

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APPENDICES

Appendix A

Copy of Combined Questionnaire Measures

Self-harm, Emotions, Body Image and Puberty Questionnaire.

Please complete the following set of questions as accurately as you can. You do not have to write your name and no one will be able to know who completed the form.

Thank you for taking part in this study!

The following questions ask you to think about HOW OFTEN you do certain things IN RESPONSE to your emotions. You do not have to think about specific emotions but just how often you GENERALLY do the things listed below.

Please tick the box to the answer that fits best. We all respond to our emotions in different ways so there is no right or wrong answer.

In GENERAL how do you respond to your emotions?	Never	Seldom	Often	Very often	Always
1. I talk to someone about how I feel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I take my feelings out on others verbally (e.g. shout)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I seek physical contact from friends or family (e.g. a hug, hold hands)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I review (rethink) my thoughts or beliefs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I harm or punish myself in some way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I do something energetic (e.g. go for a walk)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I dwell on my thoughts and feelings (e.g. it goes round in my head and I can't stop it)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I ask others for advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I review (rethink) my goals or plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I take my feelings out on other physically (e.g. fighting, lashing out)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I put the situation into perspective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I concentrate on a pleasant activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I try to make others feel bad (e.g. being rude, ignoring them)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I think about people better off and make myself feel worse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I keep the feeling locked up inside	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I plan what I could do better next time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I bully other people (e.g. saying nasty things to them, hitting them)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I take my feelings out on objects around me (e.g. deliberately causing damage to my house, school etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Things feel unreal (e.g. I feel strange, things around me feel strange, I daydream)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. I telephone friends or family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I go out and do something nice (e.g. cinema, shopping, go for a meal, meet people)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Are you worried about the way you look?

If no: please turn to the next page.

If yes: do you think about your appearance problems a lot and wish you could think about them less? Yes No

If yes: please tick which body areas you feel are a big problem for you:

Skin	<input type="checkbox"/>	Hair	<input type="checkbox"/>	Nose	<input type="checkbox"/>	Mouth	<input type="checkbox"/>	Jaw	<input type="checkbox"/>
Lips	<input type="checkbox"/>	Hips	<input type="checkbox"/>	Breasts	<input type="checkbox"/>	Genitals	<input type="checkbox"/>	Stomach	<input type="checkbox"/>
Ears	<input type="checkbox"/>	Legs	<input type="checkbox"/>	Bottom	<input type="checkbox"/>	Thighs	<input type="checkbox"/>	Feet	<input type="checkbox"/>
Hands	<input type="checkbox"/>	Eyes	<input type="checkbox"/>	Other (please state)					

2. Do you worry that you are too thin or too fat? Yes, too thin Yes, too fat No

3. How has your problem with how you look affected your life?

Has it upset you a lot? Yes No

Has it got in the way of doing things with friends or dating? Yes No

If yes; please describe.....
.....
.....

4. Has it caused you problems with school or work? Yes No

If yes; what are they?
.....

5. Are there things you avoid doing because of how you look? Yes No

If yes; what are they?
.....

6. On an average day how much time do you usually spend thinking about how you look?

Less than 1 hour a day 1-3 hours a day More than 3 hours a day

Please read each of the following questions and place a firm tick in the box next to the reply which comes closest to how you have been feeling in the past week.
 Don't take too long over your replies; there is no 'right' answer.

I feel tense or 'wound up':		I feel as if I am slowed down:	
Most of the time		Nearly all of the time	
A lot of the time		Very often	
Time to time, occasionally		Sometimes	
Not at all		Not at all	
I still enjoy the things I used to enjoy:		I get a sort of frightened feeling like	
Definitely as much		Not at all	
Not quite so much		Occasionally	
Only a little		Quite often	
Not at all		Very often	
I get a sort of frightened feeling like		I have lost interest in my appearance:	
Very definitely and quite badly		Definitely	
Yes, but not too badly		I don't take as much care as I should	
A little, but it doesn't worry me		I may not take quite as much care	
Not at all		I take just as much care as ever	
I can laugh and see the funny side of		I feel restless as if I have to be on the	
As much as I always could		Very much indeed	
Not quite so much now		Quite a lot	
Definitely not so much now		Not very much	
Not at all		Not at all	
Worrying thoughts go through my		I look forward with enjoyment to	
A great deal of the time		As much as I ever did	
A lot of the time		Rather less than I used to	
From time to time but not too often		Definitely less than I used to	
Only occasionally		Hardly at all	
I feel cheerful:		I get sudden feelings of panic:	
Not at all		Very often indeed	
Not often		Quite often	
Sometimes		Not very often	
Most of the time		Not at all	
I can sit at ease and feel relaxed:		I can enjoy a good book or radio or	
Definitely		Often	
Usually		Sometimes	
Not often		Not often	
Not at all		Very seldom	

Please think about whether you have done any of the following things to deliberately harm yourself during the past year.

If you indicate 'yes' to any item please also indicate 'how many times' you did it and 'how serious' a problem you think it was by putting one of the following codes in the relevant box:

How many times?:

- 1 = once,
- 2 = 2-10 times,
- 3 = 11-20 times,
- 4 = more than 20 times

How serious?:

- 1 = not at all serious,
- 2 = quite serious,
- 3 = moderately serious,
- 4 = very serious,
- 5 = extremely serious

	Have you done any of the following in the PAST YEAR?	No	Yes	If yes, how many times?	If yes, how serious? (use code above)
1.	<u>Drank excessive alcohol (enough to harm yourself)</u>				
2.	Taken an overdose of drugs/medication				
3.	Drank poison or something toxic				
4.	Burned or scalded yourself				
5.	Deliberately cut yourself				
6.	Cut words or symbols into your skin				
7.	Made scratches on your skin				
8.	Stabbed/wounded yourself				
9.	Hit/punched yourself				
10.	Stopped a wound from healing				
11.	Bitten yourself				
12.	Something else? Please describe:				

Now, please think about whether you have done any of the following things to deliberately harm yourself during the past week.

If you indicate 'yes' to any item please also write 'how many times' you did it and indicate 'how serious' a problem you think it was by putting one of the following codes in the box:

How serious?

- 1 = not at all serious,
- 2 = quite serious,
- 3 = moderately serious,
- 4 = very serious,
- 5 = extremely serious

	Have you done any of the following in the PAST WEEK?	No	Yes	If yes, how many times?	If yes, how serious? (use code above)
13.	<u>Drank excessive alcohol (enough to harm yourself)</u>				
14.	Taken an overdose of drugs/medication				
15.	Drank poison or something toxic				
16.	Burned or scalded yourself				
17.	Deliberately cut yourself				
18.	Cut words or symbols into your skin				
19.	Made scratches on your skin				
20.	Stabbed/wounded yourself				
21.	Hit/punched yourself				
22.	Stopped a wound from healing				
23.	Bitten yourself				
24.	Something else? Please describe:				

The next part contains a list of reasons people may have for injuring themselves.

For each question, circle the number that tells how much of the time your self-injury has been due to that reason, circle a "0" if it has always been one of your reasons; circle "10" if it has never been one of your reasons.

If it has been a reason of yours, but not all the time, circle a number between 1 and 9 that best describes how often that reason has been related to your self-injury.

EXAMPLE: I have injured myself –

To protect myself

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

I have injured myself –

1. To provide a sense of excitement or stimulation that feels exhilarating

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

2. To “protect” important people in my life

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

3. To produce feelings and a sense of being real when I feel numb and “unreal”

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

4. To diminish a feeling of being utterly alone

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

5. To control the reactions of others

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

6. To distract myself from emotional pain by experiencing physical pain

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

7. To punish myself for positive feelings or experiences

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

8. To decrease feelings of fear

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

9. To prevent myself from acting on suicidal feelings

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

10. To produce a feeling of distance or numbness when my feelings are too strong or overwhelming

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

11. To satisfy voices inside or outside of me telling me to do it

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

12. To punish myself for telling secrets

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

13. To prevent myself from hurting someone else

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

14. To "kill" a part of myself

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

15. To decrease feelings of rage

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

16. To hurt someone important in my life

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

17. To punish myself for being "bad" in some way (angry, selfish, stupid, etc.)

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

18. To express anger at, or to seek revenge towards others

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

19. To remind myself that I deserve to be hurt or punished

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

20. To keep bad memories away

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

21. To show others how hurt (damaged, hopeless) I am

0 1 2 3 4 5 6 7 8 9 10
(Always) (Never)

22. To do something that only I have control of and no-one else can control

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

23. To please an important figure (God, the Devil, etc.) who wants me to do it

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

24. To provide a sense of tension release that feels like sexual release

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

25. To show others how angry I am

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

26. To remind myself that I'm alive when I otherwise feel "dead"

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

27. To diminish feeling so "empty"

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

28. To irritate or shock someone in my life

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

29. To control parts of myself that would otherwise control me

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

30. To diminish feelings of sexual arousal

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

31. To experience a "high" that feels like a drug high

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

32. To show others how strong or "tough" I am

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

33. To help me escape from uncomfortable feelings or moods

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

34. To seek support and caring from others when I cant or wont ask them directly

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

35. To prove to myself how much I can take

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

36. It makes no sense to me; I don't know why I do it and it seems to serve no function

0 1 2 3 4 5 6 7 8 9 10

(Always)

(Never)

If you have a reason for harming yourself that is not include in the list above,
please state it below:

.....

.....

.....

.....

.....

.....

Are you:

Male Female

How old are you?

... ..YearsMonths

What school do/did you go to?

.....

How many close friends do you have?

.....

If you had a problem, who would you tell?

Teacher Parent Friend

Boyfriend Girlfriend No-one

Other.....

Who do you live with?

Mother Father Brother/s

Sister/s Other.....

Compared to your friends, do you think you started puberty:

Early About the same Late

Have you ever had any unwanted sexual experiences?

Yes No

Have you ever been bullied in any way?

Yes, a lot Yes, a bit No, never

If Yes, roughly how old were you?

.....

Have you ever deliberately harmed yourself?

Yes No

Would you mind your key worker seeing your answers to this questionnaire? (clinical group only)

Yes No

Are you in current contact with psychology or psychiatry services, or have you had previous contact? (school group only)

Yes No

Thank you very much for your participation

Appendix B

Original version of self-harm inventory

SELF HARM

I'm going to read out a number of things that you might have done in the **last year**.

If any of these apply to you please say 'yes.' If you say 'yes' I will ask you about how often and how serious it has happened.

	Yes?	Frequency	Lethality
Taken an alcohol overdose	_____	_____	_____
Taken a drug/medication overdose	_____	_____	_____
Taken poison or caustic substance	_____	_____	_____
Burned or scalded yourself	_____	_____	_____
Made cuts to your body	_____	_____	_____
Carved words or symbols on your flesh	_____	_____	_____
Made scratches to your skin	_____	_____	_____
Stabbed/punctured yourself	_____	_____	_____
Inflicted blows on yourself/hit yourself	_____	_____	_____
	Yes?	Frequency	Lethality
Stopped or interfered with a wound healing	_____	_____	_____
Bitten yourself	_____	_____	_____
Other, describe:	_____	_____	_____

Frequency: 0=not at all, 1=once, 2=2-10 times, 3=more than 10 times, 4=25+ times

Lethality: 1=very low, 2=low, 3=moderate, 4=high, 5=very high, 6=severe

If 'no' to all items go on to Social Support section. If yes, carry on below.

Have you done any of these in the **last week?** If so, which of these? (*only list ones that have already had a positive response*).

	Yes?	Frequency	Lethality
Taken an alcohol overdose	_____	_____	_____
Taken a drug/medication overdose	_____	_____	_____
Taken poison or caustic substance	_____	_____	_____
Burned or scalded yourself	_____	_____	_____
Made cuts to your body	_____	_____	_____
Carved words or symbols on your flesh	_____	_____	_____
Made scratches to your skin	_____	_____	_____
Stabbed/punctured yourself	_____	_____	_____
Inflicted blows on yourself/hit yourself	_____	_____	_____
Stopped or interfered with a wound healing	_____	_____	_____
Bitten yourself	_____	_____	_____
Other, describe:	_____	_____	_____

Appendix C

Ethical Approval

Borders Research Ethics Committee

NHS Borders
Newstead
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23 December 2005

Ms Rachel J Thomson
Trainee Clinical Psychologist
NHS Borders/University of Edinburgh
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Dear Ms Thomson

Full title of study: **Motivational differences in self-harm behaviour and the relationship to affect regulation, body image and timing of puberty in a clinical and non-clinical adolescent population.**

REC reference number: **05/S0301/9**

The Research Ethics Committee reviewed the above application at the meeting held on 15 December 2005.

Documents reviewed

The documents reviewed at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application		02 December 2005
Investigator CV		02 December 2005
Questionnaire		02 December 2005
Letter of invitation to participant		02 December 2005
Participant Consent Form		02 December 2005

Provisional opinion

The Committee would be content to give a favourable ethical opinion of the research, subject to receiving a complete response to the request for further information set out below.

Authority to consider your response and to confirm the Committee's final opinion has been delegated to a meeting of the Sub-Committee of the REC.

Further information or clarification required

Actions

1. Provide a briefing on the recruitment of the control group
2. Make the following amendments to the documentation

Questionnaire amendments

Question on when the subject started puberty. Take out the question asking how old the subject was and change 'compared to others;' to 'compared to your friends'

'What school do you go to' change to What school **do/did** you go to'

Question on bullying. This should be moved to the end of the questionnaire so that it does not mislead the subjects into thinking the questionnaire is about bullying. Suggested bullying is a very broad term and you might want to redefine this to ensure you get the right kind of answers.

Response to emotions questionnaire. First paragraph, spelling mistake, 'IN RESPONSE to youru emotions.'

Self harm questionnaire., second section. Question 6, 'to distract myself from emotional **pain**...'

Introductory questions. Suggest that some people may not recognise things like excessive alcohol consumption as self harm. By asking if they have ever deliberately harmed themselves at the start of the questionnaire, you may lose some potentially useful answers. Also, as participants who have self harmed would take longer to fill out the questionnaire, they would automatically be identified to their class mates. Suggest moving the first page to the end and the question 'have you ever deliberately harmed yourself' on that last page so that all participants have to complete the whole questionnaire.

Participants information sheet

First page, 'Why have I been chosen?' change to 'will be asked **if they would like** to take part'

Second page, paragraph two 'What are the possible disadvantages..', 4th word form the end of the last sentence. Spelling mistake, 'you will have a **chance**'

Second page, third paragraph, 'What are the benefits...' There **may be** no specific benefits **to you**

3. Approach to participants. Suggest the first approach should be personal, through or accompanied by mental health or key worker. Should be shown the questionnaire and then asked to take it away and consider whether they want to take part. Offer the opportunity for the participants to complete the questionnaire at the unit with staff support available if they would like.
4. Suggest the forms should be given a reference and a register kept to protect participants identity but ensure duty of care. Possibly ask the participants if they would object to their care worker seeing the questionnaire.
5. Ensure the school children are aware they can speak to their guidance teacher if they wish about any issues the questionnaire raises for them as individuals.

When submitting your response to the Committee, please send revised documentation where appropriate underlining or otherwise highlighting the changes you have made and giving revised version numbers and dates.

The Committee will confirm the final ethical opinion within a maximum of 60 days from the date of initial receipt of the application, excluding the time taken by you to respond fully to the above points. A response should be submitted by no later than 22 April 2006.

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/S0301/9

Please quote this number on all correspondence

Yours sincerely



Chair

Email: deborah.adams@borders.scot.nhs.uk

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments.

Copy to: University of Edinburgh
Department of Clinical Psychology, School of Health in Social
Science,
The University of Edinburgh
Medical Quad, Teviot Place, Edinburgh

Borders Research Ethics Committee

Attendance at Committee meeting on 15 December 2005

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present?</i>	<i>Notes</i>
Geraldine Strickland	Lay member, Chair	Present	
Tony Watson	Lay member, Plastic Surgeon (retired)	Present	
Prof Don Brydon	Lay member, Research Chemist	Present	
Elizabeth Douglas	Nurse	Present	
Rev Denise Herbert	Lay member	Present	
Jane Christie	Nurse	Present	
Vera Carstairs	Lay member, Statistician	Present	
Dr John Gillies	GP	Not present	Comments provided to Chair

Borders Research Ethics Committee

NHS Borders
Newstead
Melrose
Roxburghshire
TD6 9DB

Telephone: 01896 825520
Facsimile: 01896 825580

06 February 2006

Ms Rachel J Thomson
Trainee Clinical Psychologist
NHS Borders/University of Edinburgh
Psychological Services
12 Roxburgh Street
Galshiels
TD1 1PF

Dear Ms Thomson

Full title of study: **Motivational differences in self-harm behaviour and the relationship to affect regulation, body image and timing of puberty in a clinical and non-clinical adolescent population.**

REC reference number: **05/S0301/9**

Thank you for your responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered at the meeting of the Committee held on 15 December 2005. A list of the members who were present at the meeting is attached.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application		02 December 2005
Investigator CV		02 December 2005
Questionnaire		02 December 2005
Letter of invitation to participant		02 December 2005
Participant Consent Form		02 December 2005

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/S0301/9

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely



Chair

Email: deborah.adams@borders.scot.nhs.uk

Enclosures: Standard approval conditions

Appendix D

Information sent to schools.

NHS Borders

Psychological Services

12/14 Roxburgh Street
GALASHIELS
Selkirkshire
TD1 1PF



Tel 01896 668821
Fax 01896 668834
www.nhsborders.org.uk

Date 05/06/2006
Your ref
Our ref RT

Enquiries to Rachel Thomson
Direct line
Email rachel.thomson@borders.scot.nhs.uk

Dear Sir/Madam,

Re: Research into Motivational Differences in Self-harm Behaviour and its Relationship to Affect Regulation, Body Image and Timing of Puberty in a Clinical and Non-Clinical Adolescent Population.

I am a third year Trainee Clinical Psychologist carrying out my doctorate research project with the University of Edinburgh and NHS Borders.

My study is looking at self-harm behaviour in adolescents aged 16-18 years, both from an NHS population and a non-clinical schools group.

I would be grateful if you could read the enclosed information about the study, and consider allowing me to circulate my questionnaire to pupils at your school. I am enclosing the full set of questionnaires that I would be using. The whole set takes approximately 20 to 30 minutes to complete.

Ideally I would hope that questionnaires could be filled in during class time, after which they could be collected and any questions answered. However, I would be willing to provide stamped addressed envelopes to enable pupils to take the questionnaire home and return to me by post if this is not possible.

Because the questionnaire does involve some sensitive issues, such as self-harm, I would be willing to offer some 'drop-in' sessions for pupils to come and speak to me about such issues if you felt this would be beneficial. I also have a variety of self-help leaflets, which I would be happy to supply you with.

I would be grateful if you could get in touch with me as soon as possible to arrange details if you are willing to take part.

Thank you for taking the time to read my information.

Yours sincerely,

Rachel Thomson
Trainee Clinical Psychologist

Supervised by: Dr April Quigley
Clinical Psychologist

Psychological Services
12/14 Roxburgh Street
GALASHIELS
Selkirkshire
TD1 1PF

Tel 01896 668821
Fax 01896 668834
www.nhsborders.org.uk



Invitation to take part in study looking at mood, body image, puberty and self-harm.

I am a Trainee Clinical Psychologist at Edinburgh University, who works at the Adult Mental Health Service in Galashiels. At the moment, I am doing some research in schools asking about self-harm, puberty, body image and how people deal with their emotions. I am asking all pupils aged between 16 and 18 if they would like to take part in my project.

What is the purpose of the study?

There has been some research showing that the way we feel can lead to some individuals harming themselves. Sometimes this is because people feel sad or angry, but sometimes it is because they do not like the way they look. Other studies have found people are more likely to dislike their appearance if they started puberty earlier or later than other people their age. This study aims to see if mood, body image and puberty affect the likelihood of someone harming themselves and how they are related to each other. The study will involve answering a questionnaire, which will take approximately 30 minutes.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to say at any time that you don't want to take part without giving a reason. If you don't take part it will not in any way affect the standard of care you receive.

What will I be asked to do if I take part?

If you agree to take part, you will be asked to fill in a paper and pencil questionnaire asking about self-harm and how you feel about your body and your mood. This should take about thirty minutes to do. The questionnaires are all anonymous, so no one will know which one is yours. Taking part is totally voluntary and you can decide that you do not want to continue with the questionnaire at any time.

What if I have any questions or worries?

If, after you have filled in the questionnaire, you find that it has made you worry about things, and you would like to talk this over with someone you could do one of these things:

- Talk to your guidance teacher
- Talk to another teacher you trust
- Talk to your family doctor
- Call me (Rachel Thomson) at Psychological Services on 01896 668821 or at rachel.Thomson@borders.scot.nhs.uk

Thank you for your time,

Rachel Thomson Trainee Clinical Psychologist

Psychological Services
12/14 Roxburgh Street
GALASHIELS
Selkirkshire
TD1 1PF

Tel 01896 668821
Fax 01896 668834
www.nhsborders.org.uk



CONSENT FORM

Self-harm, affect regulation, body image and puberty in adolescents.

Rachel Thomson

Please initial box

- | | | |
|---|--|--------------------------|
| 1 | I confirm that I have read and understand the information sheet dated 28/11/05 (Version 1) for the above study and have had the opportunity to ask questions. | <input type="checkbox"/> |
| 2 | I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. | <input type="checkbox"/> |
| 3 | I agree to take part in the above study. | <input type="checkbox"/> |

Name of Participant

Date

Signature

Name of Person taking consent
(if different from researcher)

Date

Signature

Researcher

Date

Signature

1 for participant; 1 for researcher

Appendix E

Information sent to psychology, psychiatry and mental health services

NHS Borders

Psychological Services

12/14 Roxburgh Street
GALASHIELS
Selkirkshire
TD1 1PF

Tel 01896 668821
Fax 01896 668834
www.nhsborders.org.uk



Date
Your ref
Our ref RT/

Enquiries to Rachel Thomson
Direct line
Email rachel.thomson@borders.scot.nhs.uk

Dear

Re: Research into Motivational Differences in Self-harm Behaviour and its Relationship to Affect Regulation, Body Image and Timing of Puberty in a Clinical and Non-Clinical Adolescent Population.

I am a third year Trainee Clinical Psychologist carrying out my doctorate research project with the University of Edinburgh and NHS Borders.

My study is looking at self-harm behaviour in adolescents aged 16-18 years, both from an NHS population and a non-clinical schools group.

I would be grateful if you could read the enclosed information about the study, and consider handing out my questionnaire to patients seen by your service aged 16-18.

I am enclosing the full set of questionnaires that I would be using. The whole set takes approximately 20 to 30 minutes to complete. I will provide stamped addressed envelopes to enable patients to return questionnaires to me by post if they do not wish to hand them back to their key worker.

I would be extremely grateful if you could contact me to indicate if you would be happy for me to recruit participants through your service, or to arrange to discuss this further. I can be contacted by telephone, email or post (addresses above).

Yours sincerely,

Rachel Thomson
Trainee Clinical Psychologist

Psychological Services
12/14 Roxburgh Street
GALASHIELS
Selkirkshire
TD1 1PF

Tel 01896 668821
Fax 01896 668834
www.nhsborders.org.uk



Invitation to take part in study looking at mood, body image, puberty and self-harm.

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

What is the purpose of the study?

There has been some research showing that the way we feel can lead to some individuals harming themselves. Sometimes this is because people feel sad or angry, but sometimes it is because they do not like the way they look. Other studies have found people are more likely to dislike their appearance if they started puberty earlier or later than other people their age. This study aims to see if mood, body image and puberty affect the likelihood of someone harming themselves and how they are related to each other. The study will involve answering a questionnaire, which will take approximately 30 minutes.

Why have I been chosen?

All people aged 16 to 18 who have had contact with psychology or psychiatry services, or a mental health charity, within the last 6 months will be asked if they would like to take part in the study.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to say at any time that you don't want to take part without giving a reason. If you don't take part it will not in any way affect the standard of care you receive.

How do I take part?

You will have been given this information sheet along with a questionnaire, a letter of invitation and two consent forms. If you decide to take part, you can either return the questionnaire or fill

it in with your key worker or the researcher (either at your home, the psychology department or somewhere else you would feel comfortable).

If you want to return the questionnaire by post, please send it along with one copy of the signed consent form in the SAE provided.

If you want to fill it in with your key worker or the researcher, please ask them return the questionnaire along with one signed copy of the consent form in the SAE provided.

Answering the questionnaires will take approximately 15-30 minutes, after which you do not need to do anything else.

What are the possible disadvantages and risks of taking part?

There are no disadvantages to taking part. The study will be carried out by a trainee clinical psychologist and if you feel that any of the questions make you feel upset you will have a chance to discuss this.

What are the possible benefits of taking part?

There are no specific advantages to you in taking part. Rather, this study aims to increase what is known about self-harm so others can be helped in the future. Everyone who takes part will be offered information on self-harm and a list of helpful organisations and websites. Please contact the researcher at the address below if you would like this information but do not want to take part in the study.

Will my taking part in this study be kept confidential?

All information collected about you during the study will be kept strictly anonymous. You will not have to write your name on anything. The researcher will have a coded list of people who have taken part. If they feel your answers indicate there is a serious danger to yourself or anyone else they may have to tell someone, such as your key worker. This would only happen in very extreme cases.

What will happen to the results of the research study?

The results of the study will be used to write up the researcher's doctorate thesis. You can request a copy of the results from the researcher if you wish, or you can request verbal feedback.

Who has reviewed the study?

This study has been reviewed by NHS Borders Research Ethics Committee.

Contact for further information

If you would like any further information please contact:

Rachel Thomson, Trainee Clinical Psychologist, 12 Roxburgh Street, Galashiels, TD1 1PB. Tel: 01896 66882

Thank you for reading this information! You will be given a copy of this information sheet and a signed consent form to keep if you agree to take part in the study.

Psychological Services
12/14 Roxburgh Street
GALASHIELS
Selkirkshire
TD1 1PF

Tel 01896 668821
Fax 01896 668834
www.nhsborders.org.uk



CONSENT FORM

Self-harm, affect regulation, body image and puberty in adolescents.

Rachel Thomson

Please initial box

- | | | |
|---|--|--------------------------|
| 1 | I confirm that I have read and understand the information sheet dated 28/11/05 (Version 1) for the above study and have had the opportunity to ask questions. | <input type="checkbox"/> |
| 2 | I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected. | <input type="checkbox"/> |
| 3 | I agree to take part in the above study. | <input type="checkbox"/> |

Name of Patient

Date

Signature

Name of Person taking consent
(if different from researcher)

Date

Signature

Researcher

Date

Signature

1 for patient; 1 for researcher

Appendix F

Distribution of scores of questionnaire measures

Emotion Regulation Scores

Statistics

		EF	ED	IF	ID
N	Valid	218	218	218	218
	Missing	3	3	3	3
Mean		16.5000	8.6284	13.3440	10.5505
Std. Deviation		4.47857	2.93313	3.68782	3.82325
Skewness		.282	1.449	.190	.764
Std. Error of Skewness		.165	.165	.165	.165
Kurtosis		-.079	3.428	.300	.420
Std. Error of Kurtosis		.328	.328	.328	.328

Anxiety and Depression Scores

Statistics

		Anxiety	Dep
N	Valid	216	216
	Missing	5	5
Mean		7.1528	3.5556
Std. Deviation		3.57118	2.98472
Skewness		.726	1.207
Std. Error of Skewness		.166	.166
Kurtosis		.364	1.309
Std. Error of Kurtosis		.330	.330

Body Image Scores

Statistics

N	Valid	218
	Missing	3
Mean		1.4312
Std. Deviation		1.89526
Skewness		.925
Std. Error of Skewness		.165
Kurtosis		-.497
Std. Error of Kurtosis		.328

Self-harm Motivation Scores

Statistics

	self stimulation	magical control	affect modulation	desolation	punitive duality	influencing others
N	66 Valid 0 Missing	66	66	66	66	66
Mean	23.0833	8.0985	6.2727	1.3636	1.1818	.5606
Std. Deviation	123.44527	20.25666	18.39862	6.77924	6.04320	2.87230
Skewness	7.842	3.034	2.997	5.565	5.377	5.780
Std. Error of Skewness	.295	.295	.295	.295	.295	.295
Kurtosis	62.770	9.131	8.127	31.271	28.464	35.419
Std. Error of Kurtosis	.582	.582	.582	.582	.582	.582

Appendix G

SPSS output for significant results

Appendix G (i) Tables to Show the Skewness and Kurtosis of the Data

Table 1. To show skewness and kurtosis of HADS and Emotion Regulation scores across all participants.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
EFAFFEC	218	6.00	30.00	16.5000	4.47857	.282	.165	-.079	.3
EDAFFEC	218	5.00	23.00	8.6284	2.93313	1.449	.165	3.428	.3
IFAFFEC	218	5.00	24.00	13.3440	3.68782	.190	.165	.300	.3
IDAFFEC	218	5.00	25.00	10.5505	3.82325	.764	.165	.420	.3
ANXHADS	216	.00	18.00	7.1528	3.57118	.726	.166	.364	.3
DEPHADS	216	.00	15.00	3.5556	2.98472	1.207	.166	1.309	.3
AGE	217	16.00	18.00	16.2800	.46263	1.905	.165	2.890	.3
body image score	218	.00	6.00	1.4312	1.89526	.925	.165	-.497	.3
Valid N (listwise)	215								

Table 2. To show skewness and kurtosis of SIMS-II scores across all participants who harmed themselves.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
self stimulation	66	.00	999.00	23.0833	123.44527	7.842	.295	62.770	.5
magical control	66	.00	100.00	8.0985	20.25666	3.034	.295	9.131	.5
affect modulation	66	.00	80.00	6.2727	18.39862	2.997	.295	8.127	.5
desolation	66	.00	44.00	1.3636	6.77924	5.565	.295	31.271	.5
punative duality	66	.00	36.00	1.1818	6.04320	5.377	.295	28.464	.5
influencing others	66	.00	20.00	.5606	2.87230	5.780	.295	35.419	.5
Valid N (listwise)	66								

Appendix G (ii) Table to show anxiety scores across groups (ANOVA).

ANOVA and Post Hoc Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	435.988	2	217.994	20.136	.000
Within Groups	2305.970	213	10.826		
Total	2741.958	215			

Multiple Comparisons
 Dependent Variable: ANXHADS
 Bonferroni

(I) GROUP2	(J) GROUP2	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
school harm	school no harm	1.9747	.52913	.001	.6979	3.2515
	clinical	-2.5236	.86347	.012	-4.6072	-.4400
school no harm	school harm	-1.9747	.52913	.001	-3.2515	-.6979
	clinical	-4.4983	.78550	.000	-6.3937	-2.6028
clinical	school harm	2.5236	.86347	.012	.4400	4.6072
	school no harm	4.4983	.78550	.000	2.6028	6.3937

* The mean difference is significant at the .05 level.

Appendix G (iii) Table to show depression scores across groups (Kruskal-Wallis Test, ANOVA).

Kruskal-Wallis Test

Test Statistics

	DEPHADS	
Chi-Square	16.304	
df	2	
Asymp. Sig.	.000	

a Kruskal Wallis Test

b Grouping Variable: GROUP2

ANOVA and Post Hoc Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.325	2	3.662	7.336	.001
Within Groups	94.857	190	.499		
Total	102.181	192			

Multiple Comparisons

Dependent Variable: DEPHADS2

Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GROUP2 school harm	school no harm	.2501	.11688	.101	-.0322	.5324
	clinical	-.3798	.19323	.152	-.8465	.0869
school no harm	school harm	-.2501	.11688	.101	-.5324	.0322
	clinical	-.6299	.17831	.002	-1.0606	-.1992
clinical	school harm	.3798	.19323	.152	-.0869	.8465
	school no harm	.6299	.17831	.002	.1992	1.0606

* The mean difference is significant at the .05 level.

Appendix G (iv) Table to show self-harm and psychopathology results (T-Tests).

T-Test

	WORRY	N	Mean	Std. Deviation	Std. Error Mean
ANXHADS	yes	90	8.8000	3.65415	.38518
	no	126	5.9762	3.01321	.26844
depression	yes	83	1.3314	.68206	.07487
	no	110	.9743	.72948	.06955

Independent Samples Test

		Levene's Test for Equality of Variances	t-test for Equality of Means			Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
		F	Sig.	t	df					
ANXHADS	Equal variances assumed	4.961	.027	6.210	214	.000	2.8238	.45475	1.927	3.741
	Equal variances not assumed			6.015	168.197	.000	2.8238	.46949	1.896	3.741
depression	Equal variances assumed	1.297	.256	3.461	191	.001	.3571	.10316	.153	.561
	Equal variances not assumed			3.494	182.409	.001	.3571	.10219	.155	.561

Appendix G (v) Tables to show emotion regulation and self-harm results (Kruskal-Wallis Test, Mann-Whitney Test, ANOVA, T-Tests).

Kruskal-Wallis Test

Test Statistics

	EDAFFEC
Chi-Square	8.887
df	2
Asymp. Sig.	.012

a Kruskal Wallis Test

b Grouping Variable: GROUP2

Mann-Whitney Test

Test Statistics

	self stimulation	magical control	affect modulation	desolation	punative duality	influencing others
Mann-Whitney U	491.500	508.000	506.000	551.000	552.000	551.000
Wilcoxon W	722.500	739.000	737.000	782.000	1983.000	1982.000
Z	-.806	-.828	-1.123	-.168	-.158	-.193
Asymp. Sig. (2-tailed)	.420	.408	.261	.866	.875	.847

a Grouping Variable: GROUP2

ANOVA and Post-hoc Analysis

External Functional

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.812	2	7.406	.367	.693
Within Groups	4337.688	215	20.175		
Total	4352.500	217			

Multiple Comparisons

Dependent Variable: External Functional
Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GROUP2 school harm	GROUP2 school no harm	.4820	.72165	1.000	-1.2592	2.2233
	clinical	.9057	1.15819	1.000	-1.8889	3.7002
school no harm	school harm	-.4820	.72165	1.000	-2.2233	1.2592
	clinical	.4236	1.04921	1.000	-2.1080	2.9552
clinical	school harm	-.9057	1.15819	1.000	-3.7002	1.8889
	school no harm	-.4236	1.04921	1.000	-2.9552	2.1080

Internal Dysfunctional

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	752.799	2	376.400	33.452	.000
Within Groups	2419.146	215	11.252		
Total	3171.945	217			

Multiple Comparisons
Dependent Variable: Internal Dysfunctional
Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GROUP2 school harm	GROUP2 school no harm	3.1562	.53892	.000	1.8558	4.4565
	clinical	-2.0898	.86493	.050	-4.1768	-.0029
school no harm	school harm	-3.1562	.53892	.000	-4.4565	-1.8558
	clinical	-5.2460	.78354	.000	-7.1366	-3.3555
clinical	school harm	2.0898	.86493	.050	.0029	4.1768
	school no harm	5.2460	.78354	.000	3.3555	7.1366

* The mean difference is significant at the .05 level.

Internal Functional

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.582	2	4.791	.350	.705
Within Groups	2941.615	215	13.682		
Total	2951.197	217			

Multiple Comparisons
Internal Functional
Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GROUP2 school harm	GROUP2 school no harm	.4412	.59428	1.000	-.9927	1.8751
	clinical	.6505	.95377	1.000	-1.6508	2.9518
school no harm	school harm	-.4412	.59428	1.000	-1.8751	.9927
	clinical	.2093	.86402	1.000	-1.8754	2.2941

clinical	school harm	-.6505	.95377	1.000	-2.9518	1.6508
	school no harm	-.2093	.86402	1.000	-2.2941	1.8754

External Dysfunctional

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.067	2	.534	5.705	.004
Within Groups	20.109	215	.094		
Total	21.176	217			

Multiple Comparisons

Dependent Variable: External Dysfunctional
Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GROUP2 school harm	school no harm	.1341	.04914	.021	.0155	.2526
	clinical	-.0418	.07886	1.000	-.2320	.1485
school no harm	school harm	-.1341	.04914	.021	-.2526	-.0155
	clinical	-.1758	.07144	.044	-.3482	-.0035
clinical	school harm	.0418	.07886	1.000	-.1485	.2320
	school no harm	.1758	.07144	.044	.0035	.3482

* The mean difference is significant at the .05 level.

T-Tests

Group Statistics

	HARM	N	Mean	Std. Deviation	Std. Error Mean
EFAFFEC	yes	66	16.6364	4.03689	.49691
	no	152	16.4408	4.66881	.37869
IFAFFEC	yes	66	13.4242	3.44210	.42369
	no	152	13.3092	3.80002	.30822
IDAFFEC	yes	66	13.4091	4.12861	.50820
	no	152	9.3092	2.92338	.23712
edaffec2	yes	66	2.2196	.31817	.03916
	no	152	2.0545	.29726	.02411

Independent Samples Test

	Levene's Test for Equality of Variances	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		Upper
									Lower	Upper	
EFAFFEC	Equal variances assumed	3.576	.060	.296	216	.768	.1956	.66159	-1.10843	1.49957	
	Equal variances not assumed			.313	141.834	.755	.1956	.62476	-1.03947	1.43062	
IFAFFEC	Equal variances assumed	2.040	.155	.211	216	.833	.1150	.54483	-.95883	1.18890	
	Equal variances not assumed			.220	135.648	.827	.1150	.52394	-.92112	1.15119	
IDAFFEC	Equal variances assumed	9.265	.003	8.346	216	.000	4.0999	.49121	3.13169	5.06807	
	Equal variances not assumed			7.311	94.455	.000	4.0999	.56079	2.98648	5.21328	
edaffec2	Equal variances assumed	.478	.490	3.686	216	.000	.1650	.04477	.07679	.25328	
	Equal variances not assumed			3.588	116.410	.000	.1650	.04599	.07395	.25612	

Appendix G (vii) Tables to show body image and self-harm results (ANOVA, Kruskal-Wallis Test, Pearson's Chi-Square, Spearman's Rho).

ANOVA and Post Hoc Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.906	2	8.953	18.972	.000
Within Groups	101.458	215	.472		
Total	119.364	217			

Multiple Comparisons
Dependent Variable: Body Image Score
Bonferroni

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
GROUP2 school harm	GROUP2 school no harm	.5507	.11037	.000	.2844	.8170
GROUP2 school no harm	GROUP2 clinical	-.1671	.17713	1.000	-.5945	.2602
GROUP2 school no harm	GROUP2 school harm	-.5507	.11037	.000	-.8170	-.2844
GROUP2 clinical	GROUP2 clinical	-.7178	.16046	.000	-1.1050	-.3306
GROUP2 clinical	GROUP2 school harm	.1671	.17713	1.000	-.2602	.5945
GROUP2 clinical	GROUP2 school no harm	.7178	.16046	.000	.3306	1.1050

* The mean difference is significant at the .05 level.

Kruskal-Wallis Test

Test Statistics

	body image score
Chi-Square	33.943
df	2
Asymp. Sig.	.000

a Kruskal Wallis Test

b Grouping Variable: GROUP2

Pearson's Chi-Square

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	28.251	1	.000		
Continuity Correction	26.682	1	.000		
Likelihood Ratio	28.315	1	.000		
Fisher's Exact Test				.000	.000
Linear-by- Linear Association	28.122	1	.000		
N of Valid Cases	218				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.25.

Spearman's Rho

Spearman's rho			HARM	AGE	GENDER	BULLIED	PUBERTY	SEX	WORRY
	HARM	Correlation Coefficient	1.000	-.012	-.210	.368	.093	.217	.360
		Sig. (2-tailed)	.	.866	.002	.000	.177	.001	.000
		N	218	217	218	217	214	217	218
	AGE	Correlation Coefficient	-.012	1.000	.034	-.103	-.084	.053	-.061
		Sig. (2-tailed)	.866	.	.618	.131	.222	.443	.370
		N	217	217	217	216	213	216	217
	GENDER	Correlation Coefficient	-.210	.034	1.000	-.136	-.094	-.142	-.353
		Sig. (2-tailed)	.002	.618	.	.046	.173	.036	.000
		N	218	217	218	217	214	217	218
	BULLIED	Correlation Coefficient	.368	-.103	-.136	1.000	.106	.111	.236
		Sig. (2-tailed)	.000	.131	.046	.	.125	.104	.000
		N	217	216	217	217	213	216	217
	PUBERTY	Correlation Coefficient	.093	-.084	-.094	.106	1.000	.114	.119
		Sig. (2-tailed)	.177	.222	.173	.125	.	.097	.084
		N	214	213	214	213	214	214	214
	SEX	Correlation Coefficient	.217	.053	-.142	.111	.114	1.000	.140
		Sig. (2-tailed)	.001	.443	.036	.104	.097	.	.039
		N	217	216	217	216	214	217	217
	WORRY	Correlation Coefficient	.360	-.061	-.353	.236	.119	.140	1.000
		Sig. (2-tailed)	.000	.370	.000	.000	.084	.039	.
		N	218	217	218	217	214	217	218

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix G (viii) Tables to show parametric (Pearson's) and non-parametric (Spearman's Rho) correlations.

Pearson's Correlations

		EFAFFEC	IFAFFEC	IDAFFEC	edaffec2	depression	ANXHADS
EFAFFEC	Pearson	1	.438	.065	-.071	-.268	.008
	Correlation						
	Sig. (2-tailed)	.	.000	.339	.295	.000	.907
	N	218	218	218	218	193	216
IFAFFEC	Pearson	.438	1	.099	-.180	-.202	-.042
	Correlation						
	Sig. (2-tailed)	.000	.	.147	.008	.005	.543
	N	218	218	218	218	193	216
IDAFFEC	Pearson	.065	.099	1	.208	.390	.616
	Correlation						
	Sig. (2-tailed)	.339	.147	.	.002	.000	.000
	N	218	218	218	218	193	216
edaffec2	Pearson	-.071	-.180	.208	1	.106	.294
	Correlation						
	Sig. (2-tailed)	.295	.008	.002	.	.143	.000
	N	218	218	218	218	193	216
depression	Pearson	-.268	-.202	.390	.106	1	.464
	Correlation						
	Sig. (2-tailed)	.000	.005	.000	.143	.	.000
	N	193	193	193	193	193	193
ANXHADS	Pearson	.008	-.042	.616	.294	.464	1
	Correlation						
	Sig. (2-tailed)	.907	.543	.000	.000	.000	.
	N	216	216	216	216	193	216

** Correlation is significant at the 0.01 level (2-tailed).

Spearman's Rho - Non-Parametric Correlations

		HARM	AGE	GENDER	BULLIED	PUBERTY	SEX	WORRY
Spearman's rho	HARM Correlation Coefficient	1.000	-.012	-.210	.368	.093	.217	.360
	Sig. (2-tailed)	.	.866	.002	.000	.177	.001	.000
	N	218	217	218	217	214	217	218
	AGE Correlation Coefficient	-.012	1.000	.034	-.103	-.084	.053	-.061
	Sig. (2-tailed)	.866	.	.618	.131	.222	.443	.370
	N	217	217	217	216	213	216	217
GENDER	Correlation Coefficient	-.210	.034	1.000	-.136	-.094	-.142	-.353
	Sig. (2-tailed)	.002	.618	.	.046	.173	.036	.000
	N	218	217	218	217	214	217	218
BULLIED	Correlation Coefficient	.368	-.103	-.136	1.000	.106	.111	.236
	Sig. (2-tailed)	.000	.131	.046	.	.125	.104	.000
	N	217	216	217	217	213	216	217
PUBERTY	Correlation Coefficient	.093	-.084	-.094	.106	1.000	.114	.119
	Sig. (2-tailed)	.177	.222	.173	.125	.	.097	.084
	N	214	213	214	213	214	214	214
SEX	Correlation Coefficient	.217	.053	-.142	.111	.114	1.000	.140
	Sig. (2-tailed)	.001	.443	.036	.104	.097	.	.039
	N	217	216	217	216	214	217	217
WORRY	Correlation Coefficient	.360	-.061	-.353	.236	.119	.140	1.000
	Sig. (2-tailed)	.000	.370	.000	.000	.084	.039	.
	N	218	217	218	217	214	217	218

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix G (ix) Additional significant results:

Self-harm and unwanted sexual experiences

Pearson's Chi-Square

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.248	1	.001		
Continuity Correction	8.565	1	.003		
Likelihood Ratio	9.281	1	.002		
Fisher's Exact Test				.004	.003
Linear-by-Linear Association	10.201	1	.001		
N of Valid Cases	217				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.17.