

A comparison of first time and repeat intentional self-poisoning patients

by

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I certify that this thesis contains no material which has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the thesis, and that to the best of my knowledge and belief no material previously published or written by another person except where due acknowledgment is made in the text of the thesis.

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A handwritten signature in black ink, appearing to read 'Carolyn Driscoll', written in a cursive style.

Carolyn Driscoll

Abstract

Identifying the characteristics associated with those who make repeat suicide attempts by intentional self-poisoning is important for improving treatments and reducing the risk of further attempts and completed suicide. Limited previous research has been conducted examining this group, typically focussing on demographic and psychopathological characteristics and overlooking some important cognitive-behavioural factors and psychophysiology. In addition, the research has primarily focussed on restricted samples such as psychiatric inpatients and has lacked a consistent definition of the concept of repetition. The present research takes a process-based approach by comparing a first attempt group with a repeat attempt group and a community control group with the aim of developing a profile of those who repeat in a clinical adult sample. The first two studies in this research develop descriptive and cognitive-behavioural profiles with the results indicating similarity between the first time and repeat groups. However, the repeat group was differentiated from the first time group by more severe symptomatology, less impulsiveness in taking the overdose, and a greater likelihood of reporting tension reduction reasons for the overdose. In addition, the repeat group experienced significantly greater levels of hopelessness and reported poorer perceived problem solving skills and severely impaired coping resources. The third study extended this profile by examining the psychophysiological and subjective experience of the overdose using guided imagery. The results indicated that the first time and repeat groups demonstrated almost identical psychophysiological and subjective experiences during the process of taking the overdose which reflected a tension reduction pattern. It was concluded from this research that the differences between the first time and repeat groups appear to be quantitative rather than qualitative with the repeat group reflecting more severe symptomatology and cognitive-behavioural impairments, supporting a process approach to suicidal behaviours. It is not clear from this research if the differential characteristics of the repeat group are vulnerabilities present before the first suicide attempt or represent a deterioration of these factors over time and with subsequent attempts. Future research would benefit from examining a sample of first suicide attempt patients longitudinally to elaborate the processes associated with the differential variables identified in this research.

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Chapter 1

Introduction

1.1 Introduction to the problem

Suicidal behaviours are a major public health and social issue worldwide (Platt et al., 1992). Whilst many people die from suicide each year, the problem of attempted suicide is significantly larger. For each suicide in Australia, it has been estimated that there are at least 30 attempts (Hassan, 1996). However, the true extent of the problem of attempted suicide has been difficult to establish because national records on attempts have not been maintained. In addition, the variable definition of a suicide attempt and identification of cases make collecting accurate data problematic (Diekstra, 1993; Whitehead, Johnson & Ferrence, 1973).

In the last decade, systematic studies of the incidence of attempted suicide have been undertaken by the World Health Organisation (WHO) at multiple sites throughout Europe. These studies endeavoured to identify all cases of attempted suicide presenting at medical facilities. This research indicated that the average yearly rate of attempted suicide in Europe for adults aged over 15 years was 167 per 100, 000 with the rate for women being significantly higher (222 per 100, 000) than for men (139 per 100,000) although the male to female ratio varied between countries (Platt et al., 1992). The authors acknowledged that even these figures were likely to be an underestimation as they recorded only medically treated attempts (Schmidtke et al., 1996). In Australia, the lifetime rate for a suicide attempt has been estimated to be 1 in 32 but this was also reported to be an underestimation (Pirkis, Burgess, & Dunt, 2000).

The estimated size of the problem of attempted suicide indicates that it is a significant problem and of great cost to society. This not only includes the direct costs to the individual and health services but also the indirect costs such as loss of production due to absenteeism (O'Sullivan, Lawler, Corcoran, & Kelleher, 1999). However, the impact of attempted suicide is compounded by those who repeatedly engage in suicidal behaviours. Retrospective studies have indicated that of those who have attempted suicide, 30-66% have made a previous attempt (Barnes, 1986; Bille-Brahe & Jessen, 1994; Van Casteren, van der Veken, Tafforeau, & Van Oyen, 1993), with prospective studies suggesting that 10-40% of those who attempt suicide will repeat over the course of their life (Retterstol, 1993). As with attempted suicide,

establishing the rate of repetition has been difficult due to differences in sampling, methodology, and in the definition of a suicide attempt and a repeat attempt (Bille-Brahe, Jessen, & Jensen, 1995; Whitehead et al., 1973).

Statistics gained from the WHO European (WHO/EURO) multicentre repetition study attempted to address some of these issues to gain more reliable data about the epidemiology of repeated suicide attempts (Platt et al., 1992; Bille-Brahe et al., 1996). Repeat suicide attempts by individuals aged over 15 years were recorded in medical facilities in defined catchment areas in ten European centres. The results indicated that on average over half of the sample (54%) had made a previous attempt confirming the high rate of repetition suggested by previous retrospective studies (Kerkhof et al., 1998). The WHO/EURO research used clear criteria for recruiting participants and the same method of data collection across sites. Although cases that did not present to medical facilities were not examined, it was reported that almost all medical cases had been included, estimating that less than 10% of medical cases had been missed in some centres (Platt et al., 1992).

The WHO/EURO study of repeat suicide attempts has provided a more reliable insight into the numbers of individuals who repeatedly attempt suicide presenting at medical facilities. They represent a high demand on emergency and health services (Cantor, 1994; O'Sullivan et al., 1999). In addition to the demands on health services, those who repeat have an increased risk of completing suicide. The risk of completed suicide has been concluded to be higher for those who have made repeat attempts compared to those who have made their first attempt (De Moore & Robertson, 1996; Kotila & Lonnqvist, 1987). Indeed, an average of 3.5 attempts has been reported before a completed suicide (Cullberg, Wasserman, & Stefansson, 1988). These attempts represent a period of significant distress for these individuals and their families (Johnsson Fridell, Ojehagen, & Traskman-Bendz, 1996; Potasznik, 1995).

Furthermore, it appears that repetition of suicide attempts occurs despite engagement of the individual in psychiatric treatment (van der Sande, Buskens, Allart, van der Graaf, & van Engeland, 1997). In a five year follow-up study, all of those who had made further attempts or committed suicide had received psychiatric

treatment at the time of their suicidal behaviour (Johnsson Fridell et al., 1996). The continued attempts by these individuals suggest that engagement in some psychiatric treatments may be inadequate in preventing repetition.

In summary, those who make repeat attempts are important to study for several reasons. The large numbers of individuals engaging in repeat suicide attempts place great demands on emergency and health services (Cantor, 1994). Repeat attempts represent a major source of distress for these individuals who are at a greater risk of further repetition and completed suicide (De Moore & Robertson, 1996; Johnsson Fridell et al., 1996). Consequently, it is essential that research be directed at understanding those who repeatedly attempt suicide. In particular, research is required to identify factors that can be targeted in treatment to reduce repetition.

1.2 Nomenclature in suicidology

An ongoing issue complicating the study of repetition of attempted suicide is the nomenclature used in the suicidology literature. Although the term attempted suicide is widely used and accepted, it has been criticised for suggesting the presence of suicidal intent when it may not be present (Linehan, 1997). It has been suggested that using attempted suicide to describe the behaviour may be misleading for up to one third of those presenting for a suicide attempt as approximately one quarter to one third of those engaging in a suicide attempt deny any suicidal intent (Bancroft et al., 1979; Hawton, Cole, O'Grady, & Osborn, 1982).

To overcome the complication of suicidal intent in the terminology, the behaviour has been labelled by its method such as self-poisoning and self-injury (Kessel, 1965). These terms were also criticised as they did not communicate whether the behaviour was accidental or intentionally undertaken, and the use of deliberate or intentional self-poisoning and self-injury were considered cumbersome by some authors. Consequently, the term parasuicide was proposed as an alternative to intentional self-harm and attempted suicide. Parasuicide represented a suicide-like act where the intention to die was not necessarily a component of the definition

(Kreitman, Philips, Greer, & Bagley, 1969). It was defined as “a non-fatal act in which the individual deliberately causes self-injury or ingests a substance in excess of any prescribed or generally recognised therapeutic dose” (p. 3, Kreitman, 1977). However, the term was not widely adopted by clinicians. It was also subject to the same criticism as attempted suicide as the word too implied suicidal intent which may be absent (Hawton & Catalan, 1987; Kerkhof, 2000).

Despite the criticisms, the terms attempted suicide and parasuicide have frequently been used interchangeably. Indeed, the World Health Organisation (WHO) suggested that the terms parasuicide and attempted suicide are equivalent and either can be used. The definition proposed by the WHO for these terms was expanded upon that proposed by Kreitman et al. (1969). They were defined as “an act with non-fatal outcome, in which an individual deliberately initiates a nonhabitual behaviour that, without intervention from others, will cause self-harm, or deliberately ingests a substance in excess of the prescribed or generally recognized therapeutic dosage, and which is aimed at realizing changes which the subject desired via the actual or expected physical consequences” (p. 99, Platt et al., 1992).

More recently, a standard nomenclature for suicidology was proposed. Part of the proposal was that the term attempted suicide should be used to describe “self-injurious behavior with a nonfatal outcome, for which there is evidence (either explicit or implicit) that the person intended at some (non-zero) level to kill himself/herself”, and the term instrumental suicide-related behaviour when there is no suicidal intent and the person wanted to use the “appearance” of intending to kill themselves to attain some other goal (p. 34, O’Carroll et al., 1998). However, this system is difficult to operationalise in practice, because those attempting suicide may have mixed motives and ambivalence (Hawton & van Heeringen, 2000a; Kovacs & Beck, 1977; Modestin & Kamm, 1990; Shneidman, 1986).

In conclusion, there appears to be no ideal terminology in suicidology. For the purposes of this thesis, attempted suicide will be used to describe an intentionally self-injurious behaviour with a nonfatal outcome, irrespective of whether death was intended. This is in accordance with the WHO and a recent publication by Hawton and van Heeringen (2000a) who highlighted the difficulty of reliably measuring a

non-zero level of intent. The behaviour described by the term attempted suicide does not include the deliberate self-harm syndrome which typically involves repetitive self-cutting of low lethality and often continues for many years (Pattison & Kahan, 1983). In addition, intentional self-poisoning will be used in this thesis to describe specifically the behaviour of the research participants. Intentional self-poisoning was defined as “the intentional self-administration of more than the prescribed dose of any drug whether or not there is evidence that the act was intended to cause self-harm” (p. 191; Hawton, Fagg, Simkin, & Mills, 1994). For the purpose of this research, the term drug referred to medications only, either prescribed or purchased at a pharmacy. This was to exclude the confusion about whether an overdose of an injected drug was intentional or accidental. Patients who reported taking the medications for recreational purposes only were excluded. Alcohol intoxication was excluded also, unless it occurred in conjunction with the intentional ingestion of medications.

A further nomenclature issue in the area of repeat suicidal behaviours is the definition of repetition. Some previous research examining repeat attempted suicide have used a prospective definition of repetition. These studies record an index attempt and define the repeat group as those individuals who made a subsequent attempt during a defined follow-up period. These studies do not consider previous attempts and consequently, the single attempt group comprised both those who had made a first attempt and those who have made previous attempts (Carter et al., 1999; Taylor, Cameron, & Edey, 1998). The index attempt may be the first for only 43% of the sample (Bille-Brahe, Jessen, & Jensen, 1995). Consequently, comparisons between a single attempt group and a repeat group may misrepresent the characteristics of the first attempt group and reduce the chance of elucidating differences between the first time and repeat groups. A retrospective definition of repetition overcomes this problem and was used in this research. This definition of repetition involves comparing those who have made a first attempt with those who have made previous attempts.

1.3 Overview of this research

The purpose of this research is to develop a profile of people who repeatedly attempt suicide with the aim of identifying factors that can be treated in psychological therapy. This thesis will first review the major theoretical approaches to understanding repetition of suicidal behaviours. It will review the behavioural and cognitive-behavioural approaches to repetition of suicidal behaviours and discuss the limitations of using specific conceptualisations to understand this complex behaviour. The concept of a multidimensional suicidal process will then be examined. This approach emphasises the importance of viewing suicidal behaviours in the context of a suicidal process where multidimensional factors impact on the individual and changes may occur in the individual and their behaviour as the suicidal process progresses (Retterstol, 1993). The application of this concept to the developmental theory of attachment (Adam, 1994) and the cognitive-behavioural model of suicidality will then be discussed (Rudd, 2000a). This review of theoretical approaches to suicidality will demonstrate that process-based theoretical approaches indicate that it is beneficial to compare first time and repeat groups of suicide attempt patients to understand repetition.

A profile of those making repeat suicide attempts will then be developed over three studies. Firstly, the literature concerning descriptive factors associated with repetition will be reviewed. This literature indicates that three important domains of factors relevant to describing repeat suicidal behaviours are demographics, psychopathology and symptomatology, and the characteristics of the attempt. The review will illustrate the conflicting results for the demographic characteristics of the groups and that the demographics of a sample may be dependent on location of the study. The review will also describe the consistent psychopathological characteristics that have been associated with repetition. For the characteristics of the suicide attempt, the limited literature examining repetition demonstrates conflicting results about differential characteristics indicating the need for further research. Consequently, the aim of the first study is to describe the first time and repeat group's demographic characteristics for a clinical sample of Australian adults, to replicate the psychopathological and symptomatology findings in the literature, and to identify any differential characteristics of the suicide attempt for

those making repeat attempts. Identifying the characteristics and needs of the repeat group is essential for the development of appropriate treatments. Differential descriptive characteristics associated with repetition may have treatment implications for both the first time and repeat groups.

The second part of this thesis will then extend the descriptive profile of those making repeat attempts by reviewing cognitive-behavioural factors associated with repetition. These factors were considered important for several reasons. Firstly, cognitive-behavioural factors are embedded in a multidimensional model of suicidality that addresses repetition (Rudd, 2000a). By examining a number of variables within the context of a model that addresses the issue of repetition may aid understanding the relationships between these variables. In addition, cognitive-behavioural factors are directly amenable to intervention and cognitive-behavioural based treatments for those attempting suicide have demonstrated promising results for the reduction of ideation and repetition (van der Sande et al., 1997). Consequently, a detailed profile of those making repeat attempts may result in the development of more specific treatments for this group. There is little previous research examining the cognitive-behavioural characteristics of those making repeat attempts, especially examining coping and cognitive distortions. In addition, other cognitive-behavioural factors of hopelessness and problem solving had only been examined using limited samples. Consequently, the aim of the second study in this research is to examine coping, problem solving, cognitive distortions, and hopelessness in relation to repetition in a clinical sample of adults.

The final part of this thesis seeks to develop a psychophysiological profile of first time and repeat groups. Psychophysiology is an important aspect of behaviour to assess as it can provide objective support for self-report studies. In addition, the assessment of psychophysiology using guided imagery can identify the phenomenology of the behaviour and elucidate the underlying processes. A psychophysiological profile of the first time and repeat groups will add to the understanding of the possible reinforcement from the act and will aid in the identification of appropriate treatments. Consequently, the aim of the third study is to expand the profile of the repeat group by examining the psychophysiological and subjective experience of the suicide attempt using guided imagery.

In summary, this thesis presents a review of the literature and describes research conducted to identify differential characteristics associated with repetition. Developing a detailed profile of the first time and repeat groups will be important for understanding the progression of the behaviour from a first attempt to repeat attempts. In addition, the differential characteristics of the repeat group may provide targets for interventions. More specific interventions for the repeat group may increase the benefits currently being gained from generic treatments for suicidal behaviour.

Chapter 2

Theoretical approaches to suicidal behaviour

2.1 Introduction

This chapter is a review of the theoretical approaches to suicidal behaviour relevant to understanding the repetition of suicidal acts. The literature indicates many theoretical approaches to attempted suicide. This is perhaps due to its complexity and the resulting difficulty in applying simple theoretical approaches to such a complex, multidimensional behaviour. Early theories attempted to understand suicide from a specific theoretical orientation such as sociological and psychoanalytic traditions. For example, Durkheim (1897/1951) used suicide statistics to demonstrate that the suicide rate in a society was associated with social factors such as unemployment. However, Freud (1917/1957, 1923/1961) considered suicide as the result of an intrapsychic process that was driven by the death instinct. Both approaches did not recognise the role of factors outside of their discipline. In addition, both focussed only on understanding completed suicide and did not specifically address attempted suicide, repetition or other suicidal behaviour. Consequently, they are of limited use in understanding and preventing the repetition of attempted suicide.

Behaviour theory was another early specific approach to suicidal behaviour but was the first to address the issue of repetition. Whilst some behaviour theorists acknowledged that other factors such as personality were relevant to suicidal behaviour, it retained the singular focus of behaviour principles in explaining repetition of attempted suicide. They proposed that various positive and negative reinforcements resulted from engaging in suicidal behaviours increasing the likelihood of repetition (Frederick & Resnick, 1971). The usefulness of behaviour theory was extended by the application of cognitive-behavioural theory of depression to suicidal behaviour. This research indicated significant relationships between cognitive-behavioural variables such as cognitive rigidity with suicidality but did not provide a comprehensive explanation or model of suicidal behaviour processes.

More recently, theories have taken an increasingly integrated multidimensional approach to suicidal behaviours. These approaches view suicidal behaviour as resulting from a dynamic, multidimensional process including biological, psychological, social, cultural and societal factors (Heikkinen, Aro, &

Lonnqvist, 1993). There has been increasing acknowledgment and integration of multiple factors, and also it has become evident that it is important to view suicidal behaviour as resulting from a process. Suicidal behaviour is no longer viewed as a discrete behaviour to be explained by one theoretical approach but as a process that occurs over time of which the suicidal act represents one part. This process-based approach to suicidal behaviour provides a conceptual framework for understanding suicidal behaviour and its repetition (Retterstol, 1993).

There are many process-based theories of suicidal behaviour but few address repetition from a multidimensional perspective. Two exceptions are Adam (1994) who adopted a developmental approach and a cognitive-behavioural model of suicidality. Adam (1994) applied attachment theory to the process of suicidality and repetition whilst the recently proposed cognitive-behavioural model of suicidality (Rudd, 2000a) offers an integrated multidimensional process-based explanation of suicidal behaviours including repetition and chronic suicidality. To date, the cognitive-behavioural model appears to be the most comprehensive for understanding the repetition of suicidal behaviours.

In summary, this chapter will focus on the development of theories relevant to understanding repetition of suicidal behaviours. Behaviour theory and its extension into cognitive-behaviour theory will be reviewed before the concept of a suicidal process is examined. Finally, the multidimensional process-based approaches of developmental theory and a cognitive-behavioural model of suicidality will be reviewed.

2.2 Behavioural theories of suicidal behaviour

Behaviour theory was the first to address specifically the issue of repeated suicidal behaviour. Frederick and Resnick (1971) first formalised behaviour theory in relation to suicidal behaviours in the early 1970s. They proposed that suicidal behaviours can be learned and may be reinforced by the act itself as well as the consequences of the act. They suggested that a major source of reinforcement associated with suicidal behaviours is the reduction of tension resulting from

engaging in suicidal behaviour or even making the decision to suicide. Experiencing the relief from tension associated with the crisis would increase the likelihood of the behaviour occurring again. In addition to the reinforcement associated with the relief of the unbearable psychological state, secondary gain such as the receiving of sympathy would further strengthen the reinforcement of the self-destructive act. Thus, suicidal behaviours may be learned as a method of coping, and the reinforcement resulting from the behaviour increases the likelihood of repetition.

Although the authors emphasised the primary role of tension reduction, they also acknowledged the relevance of other factors. They acknowledged that the learning of a suicidal behaviour pattern is a function of complex variables such as personality, motivation conditions, reinforcement, environment and the strength of past responses in similar conditions. The role of cognitions were briefly acknowledged when speculated that making the decision to enact a suicidal behaviour may also reduce tension and provide reinforcement (Frederick & Resnick, 1971).

The literature indicates some empirical support for the role of tension reduction in suicidal behaviours. Tension, worrying and irritability are frequently reported symptoms prior to an intentional self-poisoning incident, and a frequent motivation for impulsive self-poisoning has been reported to be the desire to reduce tension or unbearable psychological pain (Newson-Smith & Hirsch, 1979; O'Connor, Sheehy, & O'Connor, 2000; Williams, Davidson, & Montgomery, 1980). Indeed in both adolescent and adult samples, it has been suggested that suicide attempts may represent a mechanism to reduce intolerable emotional states (Goldston et al., 1996; O'Connor et al., 2000; Zlotnick, Donaldson, Spirito, & Perlstein, 1997).

Tension reduction has also been specifically associated with repetition of suicidal behaviours. Repetitive self-poisoning has been described as a maladaptive coping strategy for distress where the individual uses self-harm to eliminate the tension associated with the uncomfortable emotional state (Kiev, 1989; Liberman & Eckman, 1981). Indeed, repetitive self-poisoning is often utilised by individuals diagnosed with borderline personality disorder as a dysfunctional escape behaviour for intensely painful negative affect (Shearin & Linehan, 1994).

Other authors recognised the importance of reinforcement associated with other factors in addition to the tension reduction. These include increases in attention, expressions of concern and support from others, or the eliciting of a desired response from others resulting in positive reinforcement (Farberow & Shneidman, 1965; Sifneos, 1966). Possible negative reinforcers include relief from the tension as well as being removed from the stressful situation and into a hospital facility. The immediacy of the reinforcement may make it more potent (Lester, 1987). This formulation includes not only the importance of tension reduction and secondary gain but also the escape value of the behaviour. Paradigms of escape conditioning suggest that strong urges to escape or actual escape behaviours can be learned so strongly that they are automatic for some individuals when faced with extreme and uncontrollable pain (Linehan, 1999).

Treatment studies using behavioural formulations of suicidal behaviour provide further evidence for the importance of behavioural factors. Operant based behaviour therapies have been reported to be effective in reducing suicidal behaviours in single case studies (Bostock & Williams, 1974; Zich, 1984). In addition, behaviourally-based treatment has been reported to be more effective than insight oriented treatment in a small sample of patients who had attempted suicide (Lieberman & Eckman, 1981). Linehan (1997) concluded that focused behavioural interventions appear to be promising treatments for reducing the incidence of suicidal behaviours.

The evidence indicates that behaviour theory is relevant for understanding the repetition of suicidal behaviours. This theory may be considered an early process-based model as it described the process of developing a pattern of repetition. However, behaviour theory alone is not sufficient in understanding such complex behaviours due to the specificity of the approach. For example, the approach is limited by its exclusion of the influence of cognitive characteristics such as dichotomous thinking. With the development of cognitive theories of depression, the application of behaviour theory to suicidal behaviour was soon extended to incorporate cognitive factors. The cognitive factors that were associated with

depression were examined to determine if a specific relationship existed with suicidality.

2.3 Cognitive-behavioural approaches to suicidal behaviour

The cognitive-behavioural approach to suicidal behaviour developed from depression theory (Freeman & Reinecke, 1993). As up to 88% of those who complete suicide and 78% of those who attempt suicide have significant depressive symptoms, theories of depression were extended to suicide (Lonnqvist, 2000; Suominen et al., 1996). Beck's concept of the cognitive triad appeared to be relevant to the hopelessness research with suicidal behaviour (Beck, Rush, Shaw, & Emery, 1979). In addition, it was proposed that beliefs, expectations, attributions and thinking styles in depressed individuals may become focussed on suicide when the perceived predicament is intolerable and the future hopeless (Beck, 1983). Much of the cognitive-behavioural approach to suicidality was empirically driven, with consistently demonstrated results building the cognitive-behavioural model of suicidality.

Beck's concept of the cognitive triad was of particular relevance to the empirical research examining the link between hopelessness and suicidality (Beck et al., 1979). The cognitive triad in depressed individuals represents a negative view of the self, the world, and the future. Studies indicated that hopelessness was an essential factor in suicidal behaviours, mediating the relationship between depression in adults and suicidal intent, and predicting future completed suicide (Beck, Steer, Kovacs, & Garrison, 1985; Minkoff, Bergman, Beck, & Beck, 1973). Studies investigating the components of hopelessness suggested that irrespective of depression status, individuals who had attempted suicide were unable to generate positive future events or think of reasons why negative events would not happen. The authors reported that this was attributable to the inability to think positively about themselves, their circumstances, or the future, reflecting the cognitive triad (MacLeod, Pankhania, Lee, & Mitchell, 1997; MacLeod & Tarbuck, 1994). Hopelessness remains one of the most important and consistently demonstrated

cognitive factors relevant to suicidal behaviours, and will be discussed in greater detail in Chapter 5.

The cognitive distortions and irrational beliefs associated with depression were also proposed to be relevant to suicidal behaviours (Ellis, 1986; Weishaar & Beck, 1990). One cognitive distortion that was identified as relevant to suicidal individuals was dichotomous thinking, the tendency to think in all-or-nothing terms. Neuringer's (1961, 1967, 1968, 1976) laboratory research over many years indicated that patients who had attempted suicide were substantially more dichotomous in their thinking than a psychiatric and medical control group irrespective of their psychiatric status. For individuals who made highly lethal suicide attempts, the dichotomous thinking was reported to be even more predominant.

Other distortions reported to be associated with suicidal ideation are selective abstraction and overgeneralisation. Prezent and Neimeyer (1988) demonstrated that even when controlling for depression, these two cognitive distortions were predictive of suicidal ideation. In addition, greater levels of irrational beliefs have been associated with suicidality. Ellis and Ratliff (1986) reported that the irrational belief that emotions are caused by external factors significantly discriminated between suicidal and nonsuicidal groups.

Empirical research also indicated other differential features of the cognitive style of suicidal individuals. Cognitive rigidity has been consistently demonstrated to be related to suicidality. In early studies, tests of impersonal problem solving tasks were used to demonstrate the presence of rigidity in groups of patients who had attempted suicide compared to a nonsuicidal psychosomatic group and nonpsychiatric controls (Neuringer, 1964). They demonstrated that suicidal individuals were more rigid and inflexible and less able to change their problem solving strategy despite a more effective strategy becoming available (Levenson & Neuringer, 1971).

In addition to impersonal problem solving impairments, difficulties with interpersonal problem solving were also identified. Examination of interpersonal problem solving indicated that individuals who had attempted suicide engaged in less

active and more passive problem solving than individuals who displayed only suicidal ideation and nonsuicidal psychiatric patients. Those who had attempted suicide also tended to rely on others to solve their problems or offer solutions (Linehan, Camper, Chiles, Strosahl, & Shearin, 1987). In addition, suicidal patients tended to perceive more numerous problems but generate fewer solutions than patient and nonpatient control participants (Rotheram-Borus, Troutman, Dopkins & Shrout, 1990). The implication of this cognitive style was that suicidal individuals were unable to solve their current problems, the most frequent of which are interpersonal (Hall, Platt, & Hall, 1999). More recent research indicated that individuals who repeatedly engage in suicidal behaviours are even more significantly impaired in problem solving, particularly problem solving confidence and a sense of personal control when solving interpersonal problems (Rudd, Joiner, & Rajab, 1996). This will be discussed in more detail in Chapter 5.

Despite evidence of problem solving deficits in those who attempt suicide and engage in repeated suicidal behaviour, there is currently no established explanation of how these deficits occur (Williams & Pollock, 2000). However, Williams has proposed a possible mechanism for the deficits based on his work on autobiographical memory (see Williams, 1996). He proposed that depressed and suicidal individuals are poor at problem solving due to an inability to access specific memories successfully. If specific memories of past events, in particular solving problems, are not accessible then these individuals cannot access the resource of previous experience (Williams & Pollock, 2000). This remains to be further investigated.

Linehan built on the finding of problem solving deficits with repetitive suicidal patients to develop dialectical behaviour therapy (DBT; Koerner & Linehan, 2000). It views repetitive suicide attempts as a coping behaviour for psychic distress resulting from negative environmental events, self-generated dysfunctional behaviour, and individual temperamental characteristics. Attempted suicide is believed to occur when the individual believes that an intolerable, inescapable life problem exists, and that suicidal behaviour is the best solution and regarded as an effective problem solving behaviour. Consequently, suicidal behaviours are addressed early in therapy using problem solving strategies. Evaluation of DBT

effectiveness indicates that it is an effective treatment for reducing suicidal behaviours, suggesting that this model is appropriate for repeatedly suicidal individuals (Bohus, Haaf, Stiglmayr, Pohl, Bohme, & Linehan, 2000; Linehan, Armstrong, Suarez, Allmon & Heard, 1991). Thus, problem solving appears to be a relevant variable for a cognitive-behavioural theory of repetition of suicidal behaviour. However, dialectical behaviour therapy is not an encompassing theory of suicidal behaviours but a therapy incorporating cognitive-behavioural concepts.

Clearly cognitive-behavioural research has identified factors relevant to suicidal behaviour, including repetitive suicidal behaviour, through empirical research that has developed from depression theory. However, the specificity of the approach and until recently, the lack of a comprehensive model of suicidality limited the usefulness of the cognitive-behavioural approach in explaining and treating suicidal behaviour (Rudd, 2000a). More recent theories and models acknowledge and integrate factors across theoretical approaches and professional disciplines, and have become increasingly multidimensional, emphasising the importance of the suicidal process.

2.4 The concept of a suicidal process

The conceptualisation of a suicidal process is not new and has been referred to in the literature since the 1970's (Humphrey, French, Niswander, & Casey, 1974; Sendbuchler, Kincel, Beausejour, & Nemeth, 1978). However, the development of process-based models integrating multiple factors is a more recent phenomenon in the suicide literature. Many authors have discussed the concept of a suicidal process which generally refers to the progression of suicidal thoughts to a suicide attempt or even completed suicide (Beskow, 1983; Bonner, 1992; Buchanan, 1991; Heikkinen, Aro & Lonnqvist, 1993; Mishara, 1996; Retterstol, 1993). It is conceptualised as a dynamic and time advancing process that is affected by complex biological, psychological, social, cultural, and societal factors (Heikkinen et al., 1993). The essential feature of the concept is a fundamental suicidal tendency or suicide potential of which attempted suicide and completed suicide represent differing expressions. The suicidal tendency may develop over time under the influence of

various risk factors from nonobservable behaviours such as thoughts, impulses, or plans to more observable behaviours such as communications of intent or a suicide attempt. The suicidal process can begin at any time during an individual's life although the basis may be laid in childhood. The suicidal process may develop spontaneously with little consideration or may result from a period of deliberation. These behaviours can occur repeatedly over time until they ultimately lead to completed suicide or the tendency is brought under control by some mediating variables. If the pressure on the individual is relieved, then the suicidal process can enter a quiet phase and remain dormant. In the majority of cases, the tendency does not develop further to suicide (Retterstol, 1993).

There is some empirical support for the concept of the suicidal process. Studies comparing first time and repeat suicide attempt groups indicate differences in their characteristics. Individuals who have made repeat attempts have been demonstrated to have more severe psychopathology, elevated suicide risk, greater substance abuse, poorer interpersonal problem solving and coping skills, and poorer overall functioning (Appleby & Warner, 1993; Hjemeland, 1996; Johnsson Fridell, Ojehagen, & Traskman-Bendz, 1996; Kotila & Lonnqvist, 1987; Liberman & Eckman, 1981). First time and repeat attempt groups have been demonstrated to display an overlap of psychiatric symptoms, with the repeat attempt group demonstrating a more severe clinical picture of symptomatology, suggesting a deterioration over time (Rudd et al., 1996). Such differences in characteristics suggest that first time and repeat suicide attempt groups may be at different stages of the suicidal process, with deteriorating functioning and symptomatology as the suicidal process progresses.

Further differences between first time and repeat suicide attempt groups have been demonstrated for factors associated with the suicide attempt itself. The motivations for the first and second episodes of intentional self-poisoning have been reported to be different (Bancroft, Skrimshire, & Simkin, 1976). In addition, it has been reported that there may be a desensitising effect with repetition of risk-taking behaviours which permits greater risk-taking with each subsequent attempt (Bancroft & Marsack, 1977). Attempts may escalate over time in intent (Lester, 1983), lethality, and risk to life (Bancroft & Marsack, 1977; Kurz et al., 1987). However,

these results have not been consistently demonstrated, and it has been suggested that there is changing risk over time, not necessarily an escalating risk (Duffy, 1977). The consistent reporting of changes of these factors over time supports the use of process-based theories.

In summary, there is evidence for the concept of a suicidal process. Research has demonstrated differences between first time and repeat suicide attempt groups in their characteristics, functioning and suicide attempt. Research has also suggested that there may be a deterioration of functioning over time. Consequently, process-based theories and models provide a context in which to understand factors associated with repetition of suicidal behaviours. Whilst there are many developing process-based theories, Adam's (1994) attachment theory and the recent cognitive-behavioural model of suicidality (Rudd, 2000a) appear to be the only approaches to have applied the concept to understand repetition (Cornette, Abramson, & Bradone, 2000).

2.5 Developmental theory

Developmental theorists have typically examined suicide from a process perspective (Maris, 1981; Mishara, 1996). Adam (1994) applied attachment theory to suicidal behaviour proposing that dysfunctional attachments were the vulnerability for suicidal behaviour that originated in childhood. He proposed that this vulnerability interacted with other predisposing factors such as adverse parenting resulting in personality difficulties involving self-worth, affect regulation, and the forming and maintaining of relationships. Precipitating factors such as a loss or rejection may result in anxiety, destructive anger, hopelessness, and ego decomposition. It was proposed that a suicidal crisis may ultimately be experienced during this process if contributing factors and protective factors do not modify the pathway. Contributing factors protect from or facilitate a suicidal crisis. Contributing factors include living in an area of social disorganisation or having a current major mental disorder. Protective factors such as a stable relationship may mitigate the adverse experience and may modify the pathway taken towards one of greater resilience.

Adam (1994) also briefly addressed the issue of repetition, proposing that repeat attempts may occur as a function of both the responsiveness of significant others and the specific organisational characteristics of the personality. The theory suggests that those diagnosed with borderline personality disorder have a characteristic personality organisation which leaves them at risk of multiple suicide attempts. The mechanism involved in the function of the responsiveness of significant others and repetition has not been elaborated. This theory appears to extend the behavioural approach to suicidal behaviours by including the early childhood processes prior to the suicidal behaviour as well as the importance of the consequences of the suicidal act in relation to significant others.

The evidence for this theory and its proposed mechanisms is not comprehensive (Adam, 1994). However, Adam has demonstrated a strong association between inadequate parental care and suicidal behaviour, the severity of which has been correlated with the severity of suicidal behaviour in adulthood (Adam, Lohrenz, Harper, & Streiner, 1982). Self-reported failure to achieve a secure attachment by adolescents differentiates those with a history of suicidal behaviour from those without a history of suicidal behaviours (West, Spreng, Rose, & Adam, 1999). Adam (1994) also reported that as the effect of attachment organisation is stable over time those with insecure attachments as adults are at greater risk for depression and dysfunctional anger. Finally, Adam examined the role of the type of impaired attachment and suicidal behaviour. He reported a relationship between preoccupied attachment interacting with unresolved-disorganised attachment has been associated with suicidal behaviour and ideation in a clinical sample of adolescents (Adam, Sheldon-Keller, & West, 1996).

This attachment theory of suicidal behaviours provides an understanding of the development of vulnerability to suicidal behaviour and demonstrates the importance of early experiences in the formation of personality structures. However, the evidence for the theory is incomplete, and the theory provides only a limited framework for understanding repetition.

2.6 Cognitive-behavioural model of suicidality

Rudd (2000a) has recently proposed a cognitive-behavioural model of suicidality in an effort to provide an integrated and comprehensive theory-based model that encompasses the empirical findings of the literature on suicidality. The model is schema-based reflecting the fundamental principles of experimental cognitive theory and incorporating the more recent refinements of the theory by Beck (1996) such as the concept of modes. Rudd elaborated the concept of a suicidal mode which is the organisational unit within the personality structure that contains the suicidal schemas. The mode includes the cognitive, affective, behavioural-motivational, and physiological systems. Each of these systems are interactive and interdependent. The model suggests that when a set of schema related to suicidality are activated, the suicidal mode may be triggered.

The suicidal mode is at risk of activation by predisposing vulnerabilities. Predisposing variables including DSM-IV Axis I and II diagnoses, prior history of suicidal behaviour, traumatic developmental history, and potential parental modelling. These factors are the facilitating modes which raise the potential for activation of the suicidal mode. The suicidal mode also has associated compensatory modes which involve factors that lower the risk for activation, facilitate affective recovery, and provide alternative cognitions for cognitive restructuring (Rudd, 2000a).

The model proposes that the predisposing vulnerabilities interact with stressors to trigger the suicidal mode. The triggers may be both internal and external, and are dependent on the individual's history. These factors trigger the orienting schema which assigns the initial personal meaning and activates the suicidal mode. Once activated, the suicidal mode is relatively consistent between individuals. The cognitive system's content is death related with the cognitive triad reflecting hopelessness. The behavioural/motivational system is characterised by behaviours evidencing the urge to die. The affective system reflects dysphoria and the physiological system is aroused (Rudd, 2000a).

The model includes a basis for understanding suicidal behaviours of various levels of suicidal intent. For individuals who have questionable suicidal intent, variations in the behavioural-motivation schema in the suicidal mode may occur. However, motivations other than the wish to die such as relief of tension or punishment of significant others do not involve the suicidal mode but are explained by facilitating modes. Facilitating modes raise the risk for activation of the suicidal mode and the mode's content reflects the motivation (Rudd, 2000a).

The model also proposes mechanisms for repeat attempts and chronic suicidality. It suggests that repeated attempts result from a low threshold for activation of the suicidal mode. Rudd (2000a) proposes that the affective system of the suicidal mode can be sensitised to circumstances or situational contexts that occur with negative affective experiences. This lowers the threshold for the mode being triggered in the future, resulting in repeat attempts. Repeat attempts are also proposed to result from the generalisation of triggers across similar circumstances. Rudd further suggests that if an individual experiences chronic problems or more complex Axis I and II diagnoses, then the mode may be activated more often and that it may be activated for a longer period resulting in chronic suicidality.

As the cognitive-behavioural model of suicidality is a recent development in the literature, it has been subject to little direct empirical testing. However, one study has provided indirect support for one of the repeat attempt mechanisms. Joiner and Rudd (2000) examined the parameters of a suicidal crisis and negative life events for suicidal ideation, first time, and repeat attempt groups. They predicted that for the repeat attempt group, negative events and the severity of their suicidal crisis would be relatively independent. This was based on the proposal that those who have made previous attempts have a greater number of triggers for the suicidal mode including internal and objectively neutral events. This would result in only a limited association between negative events and suicidality. The results supported this prediction indicating that negative events and crisis severity were not related for the repeat group but for the ideation and first-attempt groups negative events and severity of suicidality were related. This study provides indirect support for the role of generalisation of triggers for those who have made previous attempts.

Despite the limited empirical testing, the cognitive-behavioural model appears to be the most comprehensive for understanding suicidal behaviour and repetition. It provides a model for understanding suicide and other suicidal behaviours including repetition with varying levels of suicidal intent. This model indicates that individuals are part of a dynamic process and may change over time with the generalisation of triggers, and lowering of thresholds for activation of the modes. This cognitive-behavioural model suggests that individuals are engaged in a suicidal process where, after the first attempt, the psychological characteristics of the individual and factors related to the suicidal behaviour may change. This multidimensional, process oriented model is the most recent development in the general trend towards more integrated, flexible frameworks for suicidal behaviour (Leenaars, 1999).

2.7 Conclusion

In summary, the increasingly multidimensional process-based conceptualisations of suicidal behaviour have provided a more comprehensive understanding of repetition than the early specific theoretical approaches. However, there is evidence for the importance of behaviour, cognitive-behavioural, and developmental principles in understanding repetition. All of these theories describe repetition as the result of a process. The concept of a suicidal process provides a rationale for a research approach to repetitive suicide attempts. This concept indicates that it would be valuable to compare groups of individuals at different stages of the suicidal process as there may be changes in individuals and their behaviour as they proceed through the suicidal process. Therefore, this research will compare groups of individuals who have made their first attempt with a group of individuals who have made repeat attempts. Comparing groups who are at different stages of the suicidal process may result in the identification of specific characteristics of each group. Identification of such characteristics will aid in the development of more specific treatments for each group. If treatments are more specifically targeted to the subgroups of those who attempt suicide, such as those who repeatedly attempt suicide, they may contribute to the reduction of repetition of this potentially lethal behaviour.

Chapter 3

Descriptive factors associated with repeat suicide attempts

3.1 Introduction

Attempted suicide is a multidimensional behaviour enacted by a heterogeneous population. Research has indicated that attempted suicide occurs across age groups, genders, cultures, and psychiatric diagnoses (Hawton & van Heeringen, 2000). Further, it appears that there are different risk factors associated with suicidal behaviour for different groups of individuals engaging in the behaviour (Haas, 1997). Consequently, the delineation of subgroups of those who attempt suicide is important for developing an improved understanding of this complex behaviour. Further, the delineation of subgroups would be beneficial for the development of treatment approaches and prevention strategies. Treatment approaches have typically had only limited success in treating suicidal behaviour. This appears to have been due, in part, to the limited applicability of general treatment approaches across all who attempted suicide (Rudd, Joiner, & Rajab, 2001). Hence, investigating subgroups of the attempted suicide population is important for understanding repetition and developing appropriate treatments and prevention programs.

As discussed in Chapter 1, those who repeatedly engage in suicide attempts are an important subgroup to address. Their greater risk for further suicidal behaviour and completed suicide represents a great source of distress to the individual (De Moore & Robertson, 1996; Johnsson Fridell, Ojehagen, & Traskman-Bendz, 1996). In addition, repeat attempts place a high demand on health services (Runeson & Wasserman, 1994). Consequently, the division into first time and repeat attempt groups is important for developing more effective treatments for this at risk population.

Before treatments can be developed, the characteristics and needs of the repeat suicide attempt group must be identified. Basic demographic data is essential in describing the population and its subgroups. Differential trends of suicidal behaviour have been associated with different age groups, education, marital and socioeconomic status categories and interactions of these factors (Cantor & Neulinger, 2000; Schmidtke et al., 1998). For example, higher rates of attempted suicide have been reported for unmarried men who are unemployed (Dieserud, Loeb,

& Ekeberg, 2000). Accordingly, this chapter will review the literature for any specific demographic characteristics associated with repetition.

Fundamentally associated with attempted suicide are psychopathology and high levels of symptomatology (Hawton & van Heeringen, 2000). Studies of patients presenting to general hospitals after suicide attempts indicate that 54-92% have diagnosable psychopathology, particularly mood, substance and personality disorders (Curran, Fitzgerald, & Greene, 1999; Gupta, Sivakmar, & Smeeton, 1995; Haw, Hawton, Houston, & Townsend, 2001). A large percentage of those engaging in a suicide attempt also have high levels of subthreshold disorders representing serious levels of symptomatology (Balazs, Bitter, Lecrubier, Csiszer, & Ostorharics, 2000). Treating psychopathology and managing symptomatology is considered extremely important in preventing suicidal behaviour (Hawton & van Heeringen, 2000). Therefore, this chapter will also review the evidence for specific psychopathology and symptomatological characteristics associated with repeat suicide attempts.

Examination of the characteristics of the suicide attempt is also important as these factors have prognostic, treatment, and management implications for individuals who have attempted suicide (Hamdi, Amin, & Mattar, 1991). The decision to hospitalise an individual who has presented after a suicide attempt is, in part, dependent on their level of suicidal intent, impulsiveness and lethality of the method used to attempt suicide (Kaplan, Sadock, & Grebb, 1994). Process based theories suggest that such characteristics may change with further instances of suicidal behaviours (Frederick & Resnick, 1971; Rudd, 2000a). For example, research has suggested that the motivations for the first and second episodes of intentional self-poisoning may be different. Those who repeat have been reported to be more motivated by help seeking which may have been learnt from the consequences of the first intentional self-poisoning incident (Bancroft, Skrimshire, & Simkin, 1976). In addition, there may be changes in suicidal intent and lethality with subsequent attempts (Bancroft & Marsack, 1977; Duffy, 1977; Lester, 1983). Consequently, evidence for any differential characteristics associated with the suicide attempt will be examined in relation to repetition.

In summary, the aim of this chapter is to review the literature in reference to differences in the descriptive characteristics of those who have made their first attempt and those who have made repeat attempts. The review will focus on demographics, psychopathology and symptomatology, and the characteristics of the attempt specific to those who make repeat suicide attempts.

3.2 Demographic characteristics

The literature concerning demographic variables associated with repeat and first time suicide attempt groups provides contradictory results about differences between the two groups. On the demographic variables of sex and age there appear to be no consistent differential characteristics associated with the repeat suicide attempt group. Despite contradictory results, some specific characteristics of the repeat suicide attempt group have, however, been emerging for marital, education and socioeconomic variables.

The literature examining the relationship between sex and repetition does not present consistent findings. There have been studies reporting higher rates of repetition in males (Goldacre & Hawton, 1985; Hawton, Kingsbury, Steinhardt, James, & Fagg, 1999; Kreitman & Casey, 1988), in females (Carter et al., 1999; Johnsson Fridell, Ojehagen, & Traskman-Bendz, 1996), or reporting no sex differences (O'Connor, Sheehy, & O'Connor, 2000; Owens, Dennis, Read, & Davis, 1994; Schmidtke et al., 1996). These contradictory findings may result from the type of sample used in each study. The three studies reporting a tendency for males to predominate in the repeat group used an adolescent sample that had been admitted to an English hospital (Goldacre & Hawton, 1985; Hawton et al., 1999). In addition, it appears that the majority of studies using an adult sample do not report a specific sex association with repetition (Bille-Brahe & Jessen, 1994; Gupta, Sivakmar, & Smeeton, 1995; Hjelmeland, 1996; O'Connor et al., 2000; Owens et al., 1994). This suggests that the characteristics associated with repetition may result from an interaction with age, as well as being influenced by location of the study. The importance of location of the study has also been highlighted in previous research on attempted suicide (Batt et al., 1998; Schmidtke et al., 1998).

Contradictory findings are also evident in studies examining the age characteristics associated with repetition. It has been reported that those who make a repeated attempt tend to be older than those who have made their first attempt (Batt et al., 1998; Kotila & Lonnqvist, 1987; Wilkinson & Smeeton, 1987). Other research has indicated that those who repeat are over-represented in the younger age groups (Johnsson Fridell et al., 1996; Krarup, Nielsen, Rask, & Petersen, 1991; Stephens, 1987). However, this result again may be related to the type of sample used. It appears that those studies reporting that the repeat group tended to be younger have generally used a psychiatric patient sample with the exception of one study that did not demonstrate an age effect in a sample of young adult military inpatients (Rudd, Joiner, & Rajab, 1996). Several studies have reported that the 25-44 year old age group tends to be over-represented in the repeat group compared to those making their first attempt (Arensman & Kerkhof, 1996; Carter et al., 1999). Despite these findings of specific age associations with repetition, it appears that the majority of studies have reported an absence of significant differential age characteristics of the first time and repeat suicide attempt groups (Bille-Brahe & Jessen, 1994; Gupta et al., 1995; Hjelmeland, 1996; O'Connor et al., 2000; Rudd et al., 1996; Schmidtke et al., 1996).

A further reason for the contradictory results and the general lack of association between age and sex with repetition may be the interaction of these factors with other characteristics. As attempted suicide is a complex behaviour, it is probable that age and sex interact not only with each other but also with other factors to characterise repetition. As mentioned, interactions between age, sex and marital status have been reported for samples of individuals who had attempted suicide (Dieserud, Loeb, & Ekeberg, 2000). Consequently, it may be that more complex interactive relationships between demographic variables for repetition may exist.

In contrast to the contradictory results for age and sex, there appears to be a general trend in the literature suggesting that those who repeat are more likely to experience separation or divorce, or remain single (Appleby & Warner, 1993; Carter et al., 1999; Gupta et al., 1995; Johnsson Fridell et al., 1996; Hjelmeland, 1996; Schmidtke et al., 1996, 1998; Welcher & Nordentoft, 1993). In addition, the large

WHO/EURO study noted an interaction between sex and marital status. It was reported that there was no relationship between marital status and repetition for men but women who repeat were more likely to be divorced (Bille-Brahe & Jessen, 1994). It has also been demonstrated that more repeat patients, particularly men, tended to be living alone (Appleby & Warner, 1993; Bille-Brahe & Jessen, 1994; Peterson & Bongers, 1990). This highlights the importance of the support of a marital relationship as a protective factor for suicidal behaviour (Carter et al., 1999).

Other demographic variables of education and socioeconomic status indicate a general consistency in the results. Most studies report that those who repeat tend to have lower education, lower socioeconomic status, and are more likely to be unemployed (Arensman & Kerkhof, 1995; Bille-Brahe & Jessen, 1994; Carter et al., 1999; Gupta et al., 1995; Kotila & Lonnqvist, 1987; Owens et al., 1994; Van Egmond & Diekstra, 1990). It has been suggested that socioeconomic deprivation is related to risk factors that are associated with suicide attempts (Maris, 1981). In particular, economic deprivation may be linked to attempted suicide via psychiatric morbidity (Kerkhof, 2000). Poor socioeconomic conditions are an established determinant of psychiatric morbidity and, consequently, the psychiatric morbidity may contribute to the association with repeat suicide attempts (Gunnell, Peters, Kammerling, & Brooks, 1995).

In summary, the literature describing those who make repeat suicide attempts reflects inconsistent results. The most consistent findings are that those who make repeat attempts may be of lower educational level, lower socioeconomic status, or unemployed, and are less likely to be in a stable marital relationship. The contradictory results most likely have several contributing factors. These include the relatively few studies examining the demographic variables associated with repetition in comparison to the number of studies examining attempted suicide using a variety of samples. In addition, the contradictory results may be due to the adoption of different definitions of the repeat suicide attempt group. Several studies used the prospective definition of repetition which refers to a re-presentation to the same hospital within the study period. In these studies the first attempt group would have comprised of both first time and those who have made previous attempts (Carter et al., 1999; Taylor, Cameron, & Edey, 1998). Other studies have compared

those with a history of attempts with those making their first attempt (Rudd et al., 1996; Schmidtke et al., 1996).

Further research needs to focus on subgroups of those engaging in suicidal behaviour. The research would benefit from the use of a consistent and clear description of the subgroup examined, and definitions of the concepts. For example, studies examining first time and repeat suicide attempt groups may be helpful in clarifying any age and sex characteristics that may be associated with repetition in a clinical adult sample.

3.3 Psychopathology and symptomatology

In contrast to the contradictory results about demographic characteristics associated with repetition, the literature concerning the association between psychopathology and symptomatology and repetition displays some consistent findings. It suggests that those who repeatedly attempt suicide experience high levels of psychopathology, comorbidity, and symptomatology. Those who make multiple attempts tend to have a longer and more extensive psychiatric history including more in-patient admissions compared to first ever attempt patients (Arensman & Kerkhof, 1995; Gupta et al., 1995; Owens et al., 1994). However, it is not clear if these admissions are suicide related or due to psychiatric illness. One study reported that those who repeat are more likely to have a psychiatric history before the first attempt (Worden & Stirling-Smith, 1973). This suggests that the more extensive psychiatric history may reflect reasons other than suicidal behaviour.

Rates of diagnosed psychopathology amongst those who have made repeat suicide attempts vary but range from 54% to 92% of adult patients presenting at a hospital after a suicide attempt (Gupta et al., 1995; Haw et al., 2001). Those making repeat attempts also tend to have a greater number of diagnoses and an earlier onset of disorders compared to first attempt and suicidal ideation groups. The repeat group have been reported to be likely to have comorbid diagnosis, particularly comorbid mood, anxiety, and substance disorders (Rudd et al., 1996; Suominen et al., 1996).

Differential diagnoses have been associated with those who have made their first and those who have made repeat attempts. In adult and adolescent populations it appears that first attempt patients are more frequently diagnosed with adjustment disorder whereas repeat attempt patients are more frequently diagnosed with schizophrenia, substance-related disorder, or personality disorder (Gupta, Trivedi, & Singh, 1992; Schmidtke et al., 1998). However, several studies reported that diagnoses were almost evenly distributed between the two groups with the exception of alcohol abuse and personality disorders (Krarup et al., 1991; Ojehagen, Regnell, & Traskman-Bendz, 1991). Some differences between the two groups may be an artefact of the diagnostic process. For example, more serious disorders may only be diagnosed after several presentations resulting in the first time group more likely being diagnosed with adjustment disorder. In addition, the variable results between studies have been attributed to the use of different diagnostic classification systems. For example, the inconsistent results for the rate of diagnosis of adjustment disorder has been accounted for by the use of different systems (Haw et al., 2001).

Substance abuse disorders have also been strongly associated with repetition of suicide attempts. A particularly high rate of repetition of suicide attempts has been reported amongst those who abuse substances (Murphy, 2000). Although consumption of alcohol at the time of the attempt has not always been specifically associated with repetition (Bille-Brahe & Jessen, 1994), chronic alcoholism is more likely in those who have made three or more attempts (Batt et al., 1998). The association between substance disorders and attempted suicide is significant even after controlling for mental disorder. This suggests that the effects of substance disorders on suicide attempts are not entirely due to the effects of a comorbid mental disorder (Borges, Walters, & Kessler, 2000).

Axis II disorders are also frequently associated with repetition. Compared to those who have made a single attempt, samples of individuals who made repeat attempts are more likely to be diagnosed with a personality disorder. These include sociopathic personality (Van Egmond & Diekstra, 1990), antisocial personality (Arensman & Kerkhof, 1996), schizotypal personality (Bornstein, Klein, Mallon, & Slater, 1988), and borderline personality disorder (Linehan, Rizvi, Welch, & Page, 2000). There is a lack of research concerning the reason for the association between

personality disorders and suicidal behaviour. However, the impulsivity associated with some personality disorders, and difficulties in asking for or receiving help with problems in living have been reported as risk factors for suicidal behaviour amongst individuals with a personality disorder (Linehan et al., 2000; Williams & Pollock, 2000).

In addition to a significant psychiatric history and psychopathology, those who make repeat attempts also report significant levels of psychological symptomatology. Groups of repeat attempt patients report a greater number of symptoms than those making their first. The symptoms are more severe and of greater chronicity than those who have made a single attempt. The types of symptoms reported include greater depression, anxiety, obsessive-compulsive, paranoia, and psychotic symptoms (Johnsson Fridell et al., 1996; Joiner, Rudd, Rouleau, & Wagner, 2000; Rudd et al., 1996). In addition, those who make repeat attempts report more feelings of anger, greater intropunitiveness and a greater urge to act out their hostility than first time self-poisoning patients (Farmer & Creed, 1989; O'Connor et al., 2000; Stein, Apter, Ratzoni, Har-Even, & Avidan, 1998).

In summary, the research concerning the association between psychopathology and symptomatology of the repeat group indicates a clinical picture that is more chronic and severe. This is represented by a longer psychiatric history including comorbidity, substance abuse and personality disorders, and high levels of symptomatology compared to those who have made a single attempt. It appears that these variables are principal factors associated with repetition, as the association appears evident despite the varying methodologies and definition of the repeat group used in the research. Clearly, those who repeat will require different treatments for their psychopathology as a part of their suicidality treatment.

3.4 Characteristics of the suicide attempt

As mentioned, examination of the characteristics of the suicide attempt is also very important as these factors have prognostic, treatment, and management implications for individuals who have attempted suicide (Hamdi et al., 1991).

Suicide intent is one of the most important variables to assess for these reasons. The literature indicates inconsistent findings with studies reporting greater and less intent, as well as no differences in intent between those who repeat compared to those making their first attempt (Gispert, Davis, Marsh, & Wheeler, 1987; Hamdi et al., 1991; Hawton et al., 1999; Hjelmeland et al., 1998; O'Connor et al., 2000; Reynolds & Eaton, 1986). The reasons for such inconsistent results are not clear as most studies used the same measure of intent with an adult sample presenting to a general hospital after a suicide attempt. It may be that there are several processes relating to the consequences of the first attempt that result in either increased or decreased intent with subsequent attempts. For example, if the desired consequences of the first attempt did not eventuate, then an increase in suicidal intent may result for the subsequent attempt. Alternatively, if the act results in positive change for the individual, repetition may occur with the expectation that the environment will change in the same way resulting in a subsequent attempt of the same or diminished intent. This area requires further investigation to elucidate factors about the sample and changes over time that may contribute to the contradictory results concerning suicide intent.

The hypothesis of a differential relationship between lethality and repetition status is also subject to conflicting results with some studies indicating higher lethality and some lower lethality compared to the first attempt group (Barnes, 1986; Kotila & Lonnqvist, 1987; Power, Cooke, & Brooks, 1985; Reynolds & Eaton, 1986; Taylor et al., 1998). However, it appears that the majority of studies demonstrate no differences in lethality between first time and repeat suicide attempt groups (Barnes, 1986; Buglass & Horton, 1974; Kessel & McCulloch, 1966; Kotila & Lonnqvist, 1987; Morgan, Barton, Pottle, Pocock, & Burns-Cox, 1976; Tarter, Templer, & Perley, 1975). The conflicting results and the absence of differences may be due to the use of:

- many different measures to assess lethality. These have included the patient's triage priority rating, type of hospital ward to which the patient was admitted, as well as more formal rating scales such as the Risk Rescue Rating Scale;
- one of the three different definitions of repetition. The prospective definition reflects attempts those who have made attempts after an initial assessment, the retrospective definition of repetition reflects those who have made

previous attempts, and the third definition used involves a combination of the previous two;

- those making higher lethality first attempts may actually die at subsequent attempts eliminating the higher lethality group from the repeat sample;
- the presence of several processes depending on the consequences of the first attempt. For example, learning that the lethality of the first attempt was greater or lower than intended may result in changes to higher or lower lethality for subsequent attempts; or
- some combination of the above.

These reasons mean that it is currently difficult to draw conclusions about the relationship between lethality and repetition status.

Few studies have examined the impulsiveness of the attempt in relation to repetition. In these studies, varying definitions of impulsiveness also exist. Impulsiveness has been defined variously as reflecting no contemplation of the behaviour, less than fifteen minutes contemplation, or up to three hours between the precipitant and the act (Batt et al., 1998; Barnes, 1986; Hawton et al., 1999; Ojehagen et al., 1991; Reynolds & Eaton, 1986). Therefore, it is not entirely suprising that the results of these studies are conflicting. Illustrating the complexity of this relationship is the Batt et al (1998) findings that for most of the repeat group whose first attempt was impulsive, subsequent attempts were as impulsive or more impulsive. They also reported that even amongst the less impulsive first attempt group, half undertook a subsequent more impulsive attempt.

Motivation is also a significant characteristic of the attempt to consider as it too has treatment implications. Early authors suggested that those who made repeat attempts did so due to the failed consequences of the first attempt. The attempt was conceptualised as a failed appeal to relieve an unbearable situation (Kessel & McCulloch, 1966; Worden & Stirling-Smith, 1973). However, later research indicated that those who had made previous attempts were more likely to report help seeking as their motivation than those without previous attempts. It was suggested that the resulting help from the first overdose reinforced the behaviour making further attempts more likely (Bancroft, Skrimshire, & Simkin, 1976).

Motivation was further examined in studies attempting to develop typologies of the suicide attempt population. Henderson and colleagues (1977) developed a typology of attempted suicide based on motivation which included previous attempts as one of the variables. Those who had made previous attempts were not differentiated by particular motivations and were spread across the groups identified by the cluster analysis. However, in a second typology study, the results of the cluster analysis did elicit a group characterised by those with previous attempts. This group was distinguished by alienation, previous incidents of both self-poisoning and self-injury, increased likelihood of completed suicide, and motivated by seeking avoidance but not for extrapunitive or operant reasons. Despite this group containing many of the repeat participants, other groups derived by the typology also contained some of participants with previous attempts (Henderson & Lance, 1979). Thus, the motivational structure of the repeat group identified by the typology appears particular only to those who are at high risk of completing suicide.

Limited further literature exists about the motivational characteristics of the repeat suicide attempt group. Two studies have reported no motivational differences between first time and repeat attempt groups (Barnes, 1986; Hjelmeland et al., 1998). However, one study demonstrated that those who repeat more often report desiring an escape from an unbearable situation compared to those making their first attempt (Krarup et al., 1991). In a longitudinal study of patients who had engaged in deliberate self-harm for the first time, those who repeated in the next three months were more likely to report that their first attempt was to communicate desperation (Scott, House, Yates, & Harrington, 1997). This finding is consistent with the earlier formulation by Bancroft et al. (1976) who suggested that help from the first overdose reinforced the behaviour making further attempts more likely. The limited amount of literature makes it difficult to draw conclusions about specific motivational characteristics associated with repetition. Clearly, more research is required examining the relationship between motivation and repetition.

In summary, there appears to be no consistently demonstrated characteristics of suicide attempts associated with repetition. Only a small proportion of the attempted suicide literature has examined repetition and these studies used varying definitions of the concepts. Consequently, further research is required to clarify the association

of specific characteristics of the attempt. In addition, examination of these factors may be complicated by the presence of several processes occurring in the repeat group depending on the consequences of the first attempt.

3.5 Conclusion

This chapter has indicated the importance of examining subgroups of those who attempt suicide, in particular the importance of examining the characteristics specific to the subgroup of those who repeatedly attempt suicide. Literature examining repetition in relation to psychopathology and symptomatology indicates relatively consistent results about their characteristics associated with repetition. Individuals making repeat suicide attempts present a more severe clinical picture of more severe symptoms and comorbidity. This clear finding suggests that differential treatments may be indicated.

In contrast, contradictory results are evident in the literature concerning demographics and the characteristics of the suicide attempt in relation to repetition. Demographically, divorce or single marital status, lower education, and socioeconomic deprivation characterise the repeat group. Inconsistent results concerning age and sex may result from their interaction with other factors. For the suicide attempt characteristics, the limited literature suggests that there may be differential motivations and a relationship between repetition and impulsiveness, with the possibility of more complex processes existing for intent and lethality. The variations in the definitions of the repeat group and the variables associated with the attempt may also contribute to the inconsistency in the results.

Consequently, further research is required concerning the subgroup of repeat attempted suicide. Research with clear definitions of the variables involved, the sample, and the definition of repetition is required to determine any differential characteristics of the group. Comparing these groups will have theoretical and treatment implications, particularly in the development of more specific treatments for those who make repeat attempts. In addition, comparing first time with repeat

attempt groups may result in more effective preventative treatments for first attempt patients.

Chapter 4

Descriptive factors associated with repeat intentional self-poisoning

4.1 Introduction

The importance of identifying any unique descriptive characteristics of those who make repeat attempts compared to those who have made their first attempt was highlighted in Chapter 3. The aim of this research was to examine differences between first time and repeat intentional self-poisoning groups and a control group in a clinical sample of adults. Specifically, the aim was to examine demographic characteristics of the sample and replicate the previously reported psychopathology and symptomatology results for an Australian sample, as well as to clarify any differential characteristics of the suicide attempt for those who make repeat attempts. It was expected that the repeat intentional self-poisoning group would display a more extensive psychiatric history, greater symptomatology, and drug and alcohol use compared to the first time group who would rate higher on these variables than a control group with no psychiatric history. As contradictory results exist in relation to the demographic characteristics and characteristics of the suicide attempt, the aim of the study was to explore differences between the two intentional self-poisoning groups for demographics, suicide intent, lethality, motivation, and impulsiveness of the attempt.

4.2 Method

4.2.1 Participants

The experimental participants were 59 patients who had attended the Emergency Department of a suburban general hospital or had been admitted to a private psychiatric clinic after an intentional overdose of medication. The general hospital serviced a suburban area of Melbourne for public and private patients seeking emergency treatment. The private psychiatric clinic admitted patients for inpatient therapy after they were discharged from an emergency department. The criteria for inclusion were that the patient:

- remembered taking an intentional overdose of medications;
- was aged 18-60 years;
- was English speaking;

- was not diagnosed with a psychotic illness or evidenced current psychotic symptoms. People diagnosed with a psychotic illness who attempt suicide are considered to be a separate subgroup with different associated risk factors from others who attempt suicide (Haas, 1997; Radomsky, Haas, Mann, & Sweeney, 1999). In addition, attempts by patients with psychosis may be motivated by delusional concerns and, consequently, will involve different cognitive factors to those not diagnosed with a psychotic illness (Gupta, Trivedi, & Singh, 1992). As cognitive factors are the focus of Chapter 5, such patients were excluded.
- had regular contact with a local doctor or a mental health professional to ensure that the research was conducted in an environment of ongoing support. All potential participants were engaged or became engaged with a professional as a condition of the research resulting in no potential participants being excluded for this reason; and
- did not have a major brain injury or an intellectual disability preventing them from being able to complete the interview.

The control participants were 30 individuals recruited via advertising which explicitly stated the aims of the research at hospitals and at clubs in the community. The criteria for inclusion were:

- aged 18-60 years;
- English speaking;
- did not have a history of suicidal or self-harm behaviours; and
- were not receiving treatment for a mental illness and did not have a history of mental illness.

Control participants were selected so that the demographic characteristics of the control group contained approximately the same range or proportion as the two experimental groups. The characteristics of age, sex, marital status, education, and socioeconomic status were considered when selecting control group participants as attempted suicide is differentially associated with these demographic variables (Schmidtke et al., 1996).

4.2.2 Materials

Standard demographic data was collected. This included age, sex, marital status, education level, and social status as measured by Daniel (1983). Background information included self-reported psychiatric history (number of psychiatric hospitalisations, length of stay, time since most recent hospitalisation), current medication, and personal history of suicidal and self-harm behaviours. Information regarding the overdose included the type and number of tablets and whether alcohol was consumed with the overdose. Appendix A provides the demographic and psychiatric history questions. In addition to the demographic and background information, a number of questionnaires listed below were administered. Questionnaires that were not subject to copyright laws and have not been published elsewhere are displayed in Appendix A.

Brief Symptom Inventory

The Brief Symptom Inventory (BSI; Derogatis, 1993) is a 53 item self-report symptom inventory designed to measure the psychological symptom patterns of psychiatric, medical and nonpatient groups. Each item on the BSI is rated on a five-point scale of distress (0 to 4) ranging from “not at all” to “extremely”. Participants rated their level of distress experienced from each symptom for the week prior to the overdose.

The BSI assesses nine primary symptom dimensions; somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Three global indices of distress were also assessed. These were the global severity index (GSI) which represents a summary score of the current level of psychopathology, the positive symptom distress index (PSDI) which is a measure of perceived intensity of symptoms corrected for the number of items endorsed, and the positive symptom total (PST) which is a measure of the extent of symptomatology. Significant psychiatric symptoms are considered to be present if two or more of the dimensions have a score equal to or greater than 63 or if the GSI is greater than or equal to 63.

Psychometric evaluation has indicated that the BSI is an acceptable alternative to the reliable and validated SCL-90R (Derogatis & Cleary, 1977). The nine primary symptom dimensions of the BSI have demonstrated satisfactory internal consistency (Cronbach's $\alpha = .71$ to $.85$) and test-retest reliability ($.68$ to $.91$; Derogatis, 1993). The scale has good convergent validity as high convergence (coefficients $> .30$) between BSI scales and like dimensions of the MMPI has been demonstrated. Factor analytic studies of the internal structure of the scale have been reported to contribute to evidence of the construct validity of the scale. The scale has also demonstrated predictive validity in a variety of samples including those predicting psychopathology and general clinical samples (Derogatis, 1993).

Michigan Alcohol Screening Test

Alcohol use was assessed by the Michigan Alcohol Screening Test (MAST; Selzer, 1971). It is a 25 item screening questionnaire designed to detect alcoholism. The weighted questions are summed to produce a total score ranging from 0 to 50. A score of three or less is considered nonalcoholic, a score of four is suggestive of alcoholism, and a score of five points or more indicative of alcoholism.

The MAST has been demonstrated to differentiate alcoholic and control participants, with a low rate of false negatives indicating satisfactory construct validity (Selzer, 1971). Construct validity has been further demonstrated as the MAST correlates highly with clinical ratings of problem drinking ($r = .65$), with problem drinkers scoring significantly higher on the MAST than those with a nonsignificant problem with alcohol (Mischke & Venneri, 1987). In addition, the MAST is moderately predictive of alcohol-related diagnoses in a variety of clinical and non-clinical groups (88-100%; Hedlund & Vieweg, 1984). The majority of items discriminated consistently between problem and nonproblem drinkers (Zung, 1979). The MAST has good internal consistency (Cronbach's $\alpha = .83$ to $.95$) and test-retest reliability (one day = $.97$, four months = $.84$; Hedlund & Vieweg, 1984). It has also been reported that denial on MAST responses had a negligible effect and that MAST scores display only small correlations with social desirability scales ($r = -.11$ and $-.18$; Hedlund & Vieweg, 1984; Selzer, 1971).

Drug Screening Instrument

A drug use screening instrument was used to assess the extent of problems associated with drug misuse (excluding alcohol). The instrument used is a shortened version of the Drug Abuse Screening Test (DAST; Skinner, 1982). The DAST has been reported to be highly reliable (Cronbach's $\alpha = .86$ to $.95$) and only minimally influenced by the response biases of denial and social desirability ($r = -.13$ to $-.31$; Skinner, 1982). The shorter instrument is used in a major drug and alcohol facility in Tasmania to examine the drugs used and their behavioural, psychological, interpersonal, and medical consequences. Participants answer 10 questions about their drug use and its consequences resulting in a score from 0 to 10. The measure has been utilised for similar research purposes to the present study (Brain, 1998; Haines, 1994). A copy of the drug screening instrument can be found in Appendix A.

Suicide motivation

The individual's motivation for intentional self-poisoning behaviour was assessed using the eight categories developed by Henderson et al. (1977). The eight categories of possible reasons for the overdose were: depression, extrapunitive (hostility towards others), alienation (feeling unwanted or extruded), operant (used in preference to manipulative where the individual seeks to alter the behaviour of others), modelling (having recently been exposed to such behaviour in others), avoidance (a temporary escape from an intolerable situation), tension reduction (seeking to relieve tension or anxiety), and janus face (ambivalence about life and death). An additional category called intropunitive (wanting to punish the self) was included as intropunitive hostility has been associated with those who engage in suicidal behaviour (Brittlebank, Cole, Hassanyeh, Kenny, & Scott, 1990; Farmer, 1987). The questions are displayed in Appendix A.

This motivation questionnaire has frequently been used to examine the motivations of suicidal behaviour and in the development of typologies of suicidal behaviour (Brain, 1998; Haines, 1994; Hart, 1990; Henderson et al., 1977; Henderson & Lance, 1979). Each of the nine categories contains five questions. For each item the individual rated on a three point scale (1 = not at all, 2 = a little, 3 = a

great deal) how much the item represented the reason they took the overdose. Scores for each category range from 5 to 15.

Intent Score Scale

Suicide intent was assessed using the Intent Score Scale (ISS; Pierce, 1977). It is a 12 item suicidal intent rating scale containing three sections. These are the circumstances of the attempt (circumstances), self-reported suicidal intent (self-report), and risk to life (risk). The range of possible scores is from 0 to 25 where a high score represents high suicidal intent. Scores of 0 to 3 are classified as low intent, 4 to 10 medium intent and 11 to 25 represents high intent (Pierce, 1981). The ISS also has a question examining the impulsiveness of the act. Participants could answer that the act was impulsive with no premeditation, was contemplated for less than one hour, was contemplated for less than one day or was contemplated for more than one day.

The ISS is a modified version of the Suicidal Intent Scale (SIS; Beck, Schuyler, & Herman, 1974) which was designed to measure the seriousness of the wish of the individual to terminate their life. The SIS was modified to make a more objective scale for measuring suicidal intent. This was achieved by reducing the number of self-report items in the scale by six and including a risk to life section measuring the medical seriousness of the attempt as rated by a medical professional. The reduction of the number of self-report items helped to overcome the finding that patients with low intent tend to enhance the social desirability of their act by exaggerating their wish to die (Hamdi, Amin, & Matar, 1991).

The ISS has been demonstrated to be a reliable and valid measure of suicidal intent. Excellent inter-rater reliability has been demonstrated for two independent raters ($r = .97$), and when both a patient and their close relative completed the circumstances section ($r = .82$). Test-retest reliability has been demonstrated for a sample of patients interviewed after a suicide attempt and reinterviewed after one week without any significant change in their score reported. The ISS has been reported to have satisfactory item-total correlations and has demonstrated a relationship with a number of clinical variables related to the incidence of suicide. That is, the ISS circumstances score was higher for men, older patients, the socially

isolated and the physically ill while the self-report scores were high among patients with a history of psychiatric treatment or of previous self-harm (Pierce, 1977). The ISS correlated highly with the SIS ($r = .93$) for which satisfactory construct validity has been demonstrated (Beck et al., 1974). Predictive validity of the ISS has been demonstrated for those scoring in the low range of suicidal intent, with none completing suicide at their next attempt. Predictive validity was also demonstrated for those patients who consistently score high intent which was associated with repeated attempts over time. In addition, the completed suicide cases in the five-year follow-up tended to have high scores on the scale for the index suicide attempt and very high scores for the penultimate attempt before the suicide (Pierce, 1981).

Risk-Rescue Rating

The Risk-Rescue Rating Scale (RRRS; Weissman & Worden, 1972) is a ten-item scale assessing the lethality of a suicide attempt. There are two scales, risk and rescue, each containing five items, that combine to produce a lethality rating (Risk-Rescue Rating). Risk refers to the method used and the actual physical damage resulting from the suicide attempt with higher scores reflecting greater risk to life. Rescue refers to the likelihood of intervention during and after the suicide attempt that would reduce its lethality with higher scores reflecting greater chance of rescue. Higher scores on the RRRS reflect higher lethality.

The RRRS has been used as a descriptive and quantitative assessment of suicide attempts, and has frequently been used in suicide research to assess lethality (For example, Brent, 1987; Goldney, 1981, Florequin, Hardy, Messiah, Ellrodt, & Feline, 1995; Potter et al., 1998). The measure has demonstrated satisfactory psychometric properties in an adult population. Weissman and Worden (1972) reported that the RRRS has high internal consistency and satisfactory inter-rater reliability ($r = .78$ to $.95$). The RRRS displays face validity and can discriminate between completed and attempted suicide. Construct validity has also been reported as it has correlated significantly with clinical ($r = .66$) and empirical ($r = .60$) judgements of lethality (Weissman & Worden, 1972). Both the risk and rescue scales have been demonstrated to have satisfactory reliability. However, the risk scale has been reported to be more reliable than the rescue scale suggesting that the risk scale is more objective than rescue (Potter et al., 1998).

4.2.3 Procedure

Individuals who presented to the Emergency Department after an overdose of medication routinely received a follow-up phone call one to three weeks after their Emergency Department presentation to evaluate patient satisfaction with services and to ensure adequate follow-up in the community was obtained. This afforded the investigator the opportunity to ask patients if they would like to participate in research. The patients who were not excluded by the Emergency Department psychiatric clinicians were asked at the conclusion of the follow-up telephone call if they would be interested in participating in a research project. The Emergency Department psychiatric clinicians excluded those patients displaying, in their clinical judgement, a severe Axis II disorder or, in their opinion, research participation would be nontherapeutic. For those patients not excluded by clinicians and who were interested in research participation, the study was explained by the investigator and subsequently, an interview at the hospital arranged for those who agreed to participate.

At the private psychiatric clinic, patients who met the criteria and were not excluded by the their consultant psychiatrist were asked if they wished to participate. Patients could be excluded by the consultant psychiatrist for any reason or if the psychiatrist did not reply to the request whilst the patient was still in hospital. For practical and ethical reasons, the patients were interviewed whilst admitted to the inpatient setting. If the patient was interested, the project was explained in full and an interview time arranged.

Control participants volunteered by contacting the investigator after learning about the research via advertising. The investigator screened the potential control by explaining the inclusion criteria and, if the volunteer met the criteria, the research was explained and an appointment made.

At the interview, purposes of the research and the measures to be administered were explained in detail and informed consent was obtained from all participants. A copy of the information sheet and consent forms are displayed in

Appendix B. The control participants completed only the demographic and psychiatric history questions, the BSI, MAST and drug screening instrument whilst the experimental participants completed these questionnaires and the questionnaires relating to the overdose. The questionnaires were completed over one or two sessions, depending on the needs of the participant. Some participants preferred to take breaks and complete the interview in one session, whilst others preferred to complete it over two sessions due to fatigue or time constraints. In total, the interview for this research and the research reported in Chapter 6 took approximately two hours for the experimental participants and one hour for the control participants to complete. The questionnaires were verbally administered to both the control and experimental participants by the investigator. The questionnaires were completed at the participant's own pace, taking rest breaks as required by the participant or as appeared required to the investigator. At the end of each session, the investigator debriefed the participant. After the interview sessions, no participants reported or presented with any significant distress or required further intervention as a result of participation.

This research was conducted with the approval of the relevant research ethics committees at the University of Tasmania, Department of Psychological Medicine at Monash University, Monash Medical Centre, and The Melbourne Clinic. The precautions taken in this research project to manage any potential distress experienced by the participants included only including those patients who had regular contact with a local doctor or a mental health professional and informing the participant that they need not answer questions which they were not comfortable answering. In addition, the investigator was trained in clinical psychology and debriefed the participants after each session. In the development of this research, it was decided that basic demographic and primary psychiatric diagnosis data would be collected for the patients that did not participate to identify those patients for whom the results did not apply. Identifying the characteristics of these patients was considered appropriate by the ethics committees so that future research could be directed specifically towards this group.

4.2.4 Data analysis

Due to the large number of hypotheses tested in this and the following studies, it was decided to use a one percent significance level to control for type I error. Although a one percent level provides a reasonable control for type I errors, the relatively small sample sizes pose a further problem of statistical power. Setting too stringent a criterion of significance may result in a failure to detect real differences and lead to an undue number of type II errors. By the use of the one percent level rather than a more stringent Bonferroni correction to maintain significance for a family of tests at five percent, and by the reporting of results significant at the five percent level as trends, it was hoped to provide an approach to the analysis which would take account of the competing demands for the control of the type I error rate and the maintenance of statistical power. Where chi-square analyses are conducted, the raw data for each analysis can be viewed in Appendix G.

4.3 Results

Data collection took place over a 20 month period (1/7/99 – 31/3/01). A total of 238 patients met the criteria for participation. In total, 135 patients who met the criteria did not participate in the research (64% female, 36% male). Of this group, 44 patients (33%) were excluded by clinicians at in the Emergency Department for severe Axis II issues. At the private psychiatric clinic, 3% were excluded from participation. This was due to the discharge of the patient before permission to approach from the consultant psychiatrist was obtained. One patient was excluded as the consultant psychiatrist said that the patient was “not very communicative” and believed that they would not be able participate. In addition to clinician exclusion, other reasons for not participating were an inability to contact the patient (34%) and refusal to participate by the patient (29%).

The mean age of the patients who did not participate was 32.74 ($SD = 10.70$), of which 38% were presenting after their first overdose, 56% for a repeat overdose, and 6% unknown. The patients who did not participate were compared to the participants to identify any differences between the groups. The results indicated no significant differences for age, sex, repetition status, and Axis II diagnosis. A

significant difference was demonstrated for prior psychiatric history [$\chi^2(1, N=184) = 25.49, p < .01$]. The majority of the participating patients had a prior psychiatric history (93%) compared to 56% of the non-participating patients. A trend was noted for a difference in the primary Axis I between the non-participating and participating groups [$\chi^2(3, N=160) = 9.44, p = .02$]. There was a trend for more of those participating to be diagnosed with a mood disorder (92%) than the non-participating (37%), and a greater number of the non-participating group did not have a diagnosis and were described as experiencing an acute crisis (9%) compared to none of the participating group.

The experimental participants were divided into first time and repeat intentional self-poisoning groups. Despite making more than one suicide attempt, two participants were classified in the first time attempt group. These participants had made two attempts within a few days during hospitalisation. Both patients were experiencing intervention and the consequences of their suicide attempts for the first time and were considered to be at an early stage of the suicidal process. It was decided that it was appropriate to classify these participants in the first time group. All analyses were conducted with these two participants included in the first time group and then the results reanalysed with these two participants excluded from the first time group. The two sets of results were very similar and it was decided to include them in the first time group for the analyses reported in the following studies so that the group sizes were closer to equal. This resulted in 28 patients (48%) in the first time group and 31 (52%) in the repeat group.

4.3.1 Demographics of the sample

The demographic characteristics of the three groups are displayed in Table 4.1. Group comparisons indicated no significant differences between the groups for age, sex, marital status, education, ethnic background, or SES. However, a significant difference was detected for employment status [$\chi^2(4, N=89) = 22.33, p < .01$]. Over 80% of the control participants were employed compared to 47% of the first time and 29% of the repeat group.

Table 4.1

Demographic characteristics of the sample

| | Group | | |
|-----------------------------------|-----------------|-----------------|-----------------|
| | Control | First time | Repeat |
| | (<i>n</i> =30) | (<i>n</i> =28) | (<i>n</i> =31) |
| Age | | | |
| < 20 years | 10% | 11% | 7% |
| 20-29 | 30% | 32% | 19% |
| 30-39 | 23% | 21% | 29% |
| 40-49 | 17% | 18% | 32% |
| 50-59 | 20% | 18% | 13% |
| <i>M</i> (years) | 34.73 | 33.18 | 37.48 |
| <i>SD</i> | 11.74 | 12.24 | 10.68 |
| Sex | | | |
| Female | 67% | 64% | 74% |
| Male | 33% | 36% | 26% |
| Marital Status | | | |
| Single | 40% | 46% | 39% |
| Married | 33% | 39% | 35% |
| Separated/divorced/widow | 27% | 14% | 26% |
| Education | | | |
| Secondary | 27% | 32% | 52% |
| Completed Year 12 | 30% | 25% | 19% |
| University | 23% | 36% | 19% |
| Other | 20% | 7% | 10% |
| SES | | | |
| <i>M</i> | 4.38 | 4.73 | 5.10 |
| <i>SD</i> | 1.10 | 1.51 | 1.16 |
| Ethnic background | | | |
| Anglo Saxon | 90% | 93% | 87% |
| Other | 10% | 7% | 13% |
| Employment Status* | | | |
| Employed | 83% | 46% | 29% |
| Unemployed | 0% | 29% | 45% |
| Other (study/retired/home duties) | 17% | 25% | 26% |

**p* < .01

4.3.2 Psychiatric history and current psychopathology of the first time and repeat intentional self-poisoning groups

The first time and repeat groups were compared in relation to their history of suicide attempts, history of self-harm, and psychiatric history. In regard to the participant’s history of suicide attempts, there were no differences between the first time and repeat groups on the age of their first attempt or history of self-harm behaviours. The self-harm behaviours reported by the participants included cutting (53%), burning (12%), and head banging (12%).

The repeat group reported a median of four suicide attempts ($M = 10.03$, $SD = 19.20$, range 1-100). The results for the number of suicide attempts made by the repeat group are displayed in Table 4.2. Twenty-nine percent of the repeat group had used methods other than an overdose of medication. Other methods used for suicide attempts were wrist-cutting (33%), hanging (13%), gas (13%), traffic-related attempt (13%), jumping from a height (13%), and electrocution (7%).

Table 4.2
Number of suicide attempts made by the repeat group

| Number of attempts | Count (<i>n</i>) | Percentage |
|--------------------|--------------------|------------|
| 2 | 9 | 29% |
| 3-5 | 10 | 32% |
| 6-10 | 6 | 19% |
| Greater than 10 | 6 | 19% |

Analysis of the experimental participants’ psychiatric history indicated no differences between the two intentional self-poisoning groups. There was no significant difference between the first time and repeat groups for the frequency of a current psychiatric diagnosis (93%, 94%, respectively) or the type of Axis I diagnosis. Participants were most frequently diagnosed with a mood disorder (22%) or adjustment disorder (22%). There were no significant differences between the groups in the number of comorbid diagnoses. The most frequent comorbid diagnoses

were substance disorders (53%) and panic disorder (18%). The percentage of the experimental group with an Axis II diagnosis was 36%. Although more of the repeat group had an Axis II diagnosis, the difference was not significant (29% first time, 42% repeat). The most frequent Axis II diagnoses were borderline (43%), dependent (24%), and cluster B traits (19%). There was no significant difference between the first time and repeat groups for the frequency of psychiatric hospitalisations (54%, 71% respectively), the number (range = 1-20) or the length of hospitalisations, or the age of their first hospitalisation ($M = 30.14$, $SD = 10.85$).

4.3.3 Symptomatology

The three groups were compared on levels of symptomatology and alcohol and drug use. The results indicated significant differences between the three groups on all of the BSI dimensions. Figure 4.1 displays the means for each group for the dimensions of the BSI. One-way ANOVA's indicated that the following dimensions differed significantly between the three groups: somatization [$F(2, 86) = 25.11$, $p < .01$], obsessive-compulsive [OC: $F(2, 86) = 37.23$, $p < .01$]; interpersonal sensitivity [IS: $F(2, 86) = 56.62$, $p < .01$]; depression [DEP: $F(2, 86) = 223.32$, $p < .01$]; anxiety [ANX: $F(2, 86) = 73.06$, $p < .01$]; hostility [HOS: $F(2, 86) = 32.44$, $p < .01$]; phobic anxiety [PHOB: $F(2, 86) = 60.80$, $p < .01$]; paranoid ideation [PAR: $F(2, 86) = 43.55$, $p < .01$]; psychoticism [PSYCHOT: $F(2, 86) = 74.93$, $p < .01$]; global severity index [GSI: $F(2, 86) = 121.02$, $p < .01$]; positive symptom distress index [PSDI: $F(2, 86) = 83.72$, $p < .01$]; positive symptom total [PST: $F(2, 86) = 95.28$, $p < .01$]. Planned comparisons analyses using Student Newman-Keuls test (SNK) indicated that the repeat group scored significantly greater on the IS, PHOB, PAR, GST, PSDI dimensions ($p < .01$) compared to the first time and control groups. For the SOM, OC, DEP, ANX, HOS, PSYCHOT, and PST dimensions, the first time and repeat groups scored significantly higher than the controls ($p < .01$) but were not significantly different from each other. There was a trend for the repeat group to score higher on the OC ($p = .03$), DEP ($p = .04$), ANX ($p = .04$), and PST ($p = .03$) compared to the first time group.

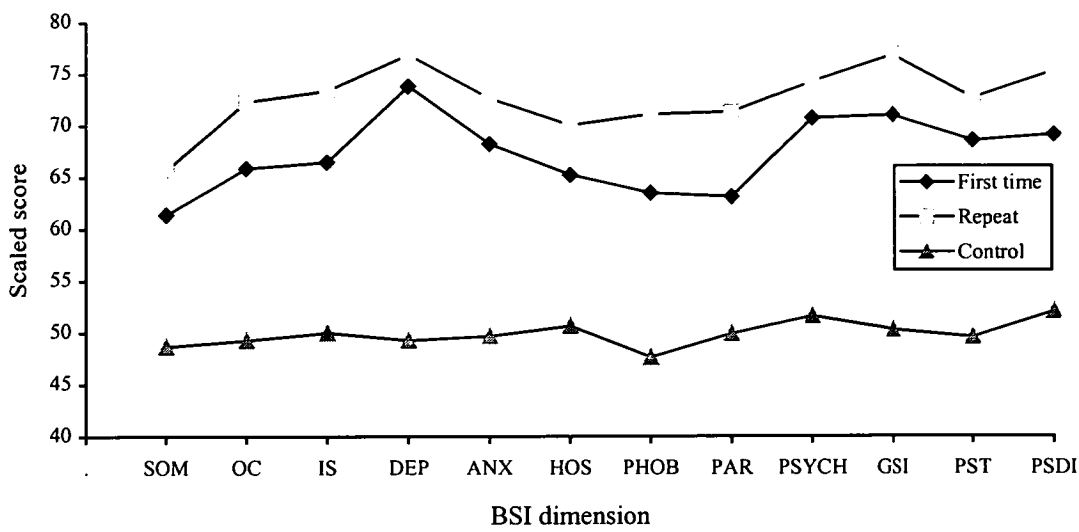


Figure 4.1
Means for each group for each dimension of the Brief Symptom Inventory (BSI)

The means and standard deviations for alcohol and drug use are displayed in Table 4.3. Due to the large variances, a Games-Howell test was used as this test does not assume equal variances (Toothaker, 1991). The results indicated a significant difference for both alcohol and drug use between the repeat group and the control group ($p < .01$). There was a trend for a difference between the first time and repeat groups ($p = .03$) for alcohol use. The difference between the first time and control group was not significant. The most frequently used drugs were cannabis (22%) and stimulants (5%), with 19% of the sample engaging in polysubstance use.

Table 4.3

Means and standard deviations for drug and alcohol use for the three groups.

| | Group | | |
|--------------|-------------------|----------------------|--------------------|
| | Control (n=30) | First time (n=28) | Repeat (n=31) |
| Alcohol use* | | | |
| <i>M</i> | 1.53 | 3.14 | 10.61 _a |
| <i>SD</i> | 1.96 | 7.40 | 13.85 |
| Drug use* | | | |
| <i>M</i> | 0.07 | 0.79 | 1.97 _a |
| <i>SD</i> | 0.37 | 1.91 | 2.97 |

* $p < .01$

a = repeat group significantly higher than control group

4.3.4 Characteristics of the intentional self-poisoning incident

The first time and repeat intentional self-poisoning groups were compared on the characteristics of the overdose. The medications most frequently taken for the overdose were minor tranquillisers (51%), salicylics (29%), antidepressants (14%), and major tranquillisers (12%). There were significant differences between the first time and repeat groups for the medications taken. The repeat group more frequently took major tranquillisers [$\chi^2(1, N=59) = 7.17, p < .01$] and antidepressants [$\chi^2(1, N=59) = 8.36, p < .01$]. There were no significant differences in the likelihood of taking the other classes of medications or the number of tablets swallowed. However, there was a significant difference between the groups for the number of different types of medications taken [$\chi^2(2, N=59) = 10.58, p < .01$]. A greater proportion of the repeat group had taken two or more types of medication (71%) compared to the first time group (29%). There was a trend for a greater percentage of the repeat group to have consumed alcohol at the time of the overdose [$\chi^2(1, N=59) = 5.43, p = .02$]. Twenty-five percent of the first time group had consumed alcohol at the time of the overdose compared to 55% of the repeat group. There was no significant difference between the two self-poisoning groups for the length of

time between the overdose and the interview ($M = 28.51$, $SD = 16.16$, median = 19 days, range 4-67 days).

Table 4.4 indicates the means and standard deviations for the ISS and its subscales, the RRRS and its subscales, and the motivation subscales. No significant differences between the two groups were observed for the intent or lethality measures. The mean suicide intent score for both groups fell in the moderate range. For the lethality subscales, a greater percentage (71%) of the first time group reported low risk compared to the repeat group (58%). A high chance of rescue was reported by 42% of the repeat group and 55% of the first time group.

Table 4.4 indicates a significant group difference on the motivation scale. The repeat group reported being significantly more motivated by tension reduction reasons [$t(56) = -2.60$, $p = .01$], and a trend for the repeat group to report greater intropunitive motivation [$t(57) = -2.42$, $p = .019$] compared to the first time group. Table 4.3 also indicates that the mean and standard deviations for the motivations for both groups of intentional self-poisoning participants. The most important motivations reported for both groups were depression, avoidance, and tension reduction.

Table 4.4

Means and standard deviations for the Intent Score Scale, Risk Rescue Rating Scale, and motivation scales for both the first time and repeat groups.

| Scale | Group | | | |
|--------------------|----------------------|-----------|------------------|-----------|
| | First time (n=28) | | Repeat (n=31) | |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| ISS Total | 7.18 | 4.79 | 8.42 | 4.96 |
| Circumstances | 2.75 | 2.46 | 2.94 | 2.43 |
| Self-report | 3.75 | 2.49 | 4.45 | 2.61 |
| Risk | 0.68 | 1.06 | 1.10 | 1.42 |
| RRRS | 31.19 | 6.44 | 33.66 | 7.78 |
| Risk | 6.14 | 1.35 | 6.52 | 1.50 |
| Rescue | 13.61 | 2.15 | 13.16 | 1.90 |
| Motivation | | | | |
| Depression | 12.93 | 2.09 | 13.00 | 1.83 |
| Extrapunitive | 8.11 | 3.36 | 7.84 | 2.57 |
| Alienation | 10.81 | 3.36 | 11.23 | 2.86 |
| Operant | 8.70 | 3.44 | 8.32 | 3.21 |
| Modelling | 6.93 | 1.98 | 7.52 | 2.20 |
| Avoidance | 12.78 | 2.44 | 12.45 | 1.86 |
| Tension reduction* | 11.26 | 2.65 | 12.94 | 2.25 |
| Janus face | 9.85 | 4.09 | 11.42 | 3.35 |
| Intropunitive | 8.52 | 3.50 | 10.48 | 3.15 |

* $p < .01$

For impulsiveness of the attempt, the four categories were reduced to three (impulsive, less than one day, more than one day) due to insufficient numbers in each category to analyse using a chi-square. There was a significant difference between the two groups for the impulsiveness of the attempt [$\chi^2(2, N=59) = 8.96, p = .01$]. A greater percentage of the first time group reported that the attempt was impulsive

(79% compared to 68%) with more in the repeat group reporting that they had planned the attempt for more than one day (29% compared to 4%).

As the tension reduction motivation significantly differentiated the repeat group from the first time group, it was correlated with the demographic data, symptomatology, and other characteristics of the attempt to further develop the profile of the repeat group. The results indicated that for the repeat group, the motivation of tension reduction did not correlate significantly with any demographic variables or other characteristics of the attempt. However, it did show a trend to correlate with the hostility dimension of the BSI ($r = .39, p = .03$).

4.4 Discussion

The aim of this study was to compare first time and repeat intentional self-poisoning groups to identify characteristics specific to each group in a clinical sample of adults. Examination of demographic characteristics indicated that the only differential characteristic between the groups was employment status. A greater percentage of the control group were currently employed compared to the first time group, which had a greater percentage of employed participants than the repeat group. More than two thirds of the repeat group were not in paid employment. As location of the study could be important when comparing demographic results, Australian research was examined. No studies comparing first time and repeat patients were identified resulting in no direct comparison for this study. However, the significance of employment status in this study is similar to the results of Carter et al. (1999) who reported that an Australian sample of prospective repeat patients were more likely to be receiving a pension or be retired.

The results of this study also indicated no significant differences for education level or SES, with both the first time and repeat groups likely to be of lower SES. The majority of this intentional self-poisoning sample had a secondary school education level or below and almost one quarter had attended University. Although the majority of previous research has typically demonstrated that the repeat group tends to be of lower education and SES, a large Danish study also indicated no

educational differences but reported that the repeat group were less likely to be employed (Bille-Brahe & Jessen, 1994). This result may be due to intrapersonal factors in those who repeat, such as mental illness or poor coping ability, which may prevent them gaining employment despite similar education.

The results of this study also indicated no significant differences between the first time and repeat group for sex and age. Both the first time and repeat groups consisted of a greater proportion of females with a mean age of approximately 35 years old. The lack of significant difference between first time and repeat groups is consistent with the majority of studies examining the association of age and sex with repetition using adult samples (Bille-Brahe & Jessen, 1994; Gupta, Sivakmar, & Smeeton, 1995; Hjelmeland, 1996; O'Connor, Connery, & Cheyne, 2000; Owens, Dennis, Read, & Davis, 1994).

This study did not demonstrate any differential marital status characteristics for the intentional self-poisoning groups. The majority of both the first time and repeat group were in the single or separated from partner categories. Although the majority of previous research suggests that the repeat group are more likely to be in the divorced or single categories, there are several studies that have failed to find this difference (Batt et al., 1998; O'Connor et al., 2000; Stephens, 1987). Stephens (1987) suggested that both the first time and repeat groups experience troubled marriages. This study supports the literature suggesting that individuals who attempt suicide, not just those who repeat, may experience difficulties maintaining relationships (O'Connor et al., 2000).

The failure to find demographic characteristics associated with repetition is not unexpected. As discussed in Chapter 3, the complexity of suicidal behaviour, and the heterogenous nature of those engaging in it suggest that interactions of demographic factors may be more likely to be associated with repetition. However, the limited number of participants prevented further analysis of the demographics for interactions and practical reasons prevented further recruitment of participants. Future research using an Australian sample could benefit from using larger samples to analyse for interactions of demographic variables associated with repetition.

The second aim of this study was to compare the groups' psychopathology and symptomatology. It was hypothesised that the repeat group would report experiencing greater psychopathology than the first time group. The results did not indicate support for this hypothesis. The results indicated no significant differences between the first time and repeat groups for proportion of the group who had a current psychiatric diagnosis, type of Axis I or Axis II disorder, comorbidity, or frequency of psychiatric hospitalisations.

Previous research has indicated that the repeat group is more likely to be diagnosed with an Axis II disorder and have greater comorbidity (Arensman & Kerkhof, 1995; Rudd, Joiner, & Rajab, 1996). Although a greater percentage of the repeat group was diagnosed with an Axis II disorder and had more comorbidity, these variables did not reach significance. This, in part, may be due to the relatively low number of participants which limits the power of the research. This will be discussed in the limitations section. However, it may also be, in part, due to clinicians' exclusion of patients whom they did not believe appropriate for research. Examination of the patients excluded by clinicians indicated that the majority had made previous attempts, over twenty percent had a substance-related disorder, and almost two thirds had an Axis II diagnosis. The clinicians excluded them on the basis that further engagement with these patients with severe Axis II diagnoses would not be therapeutic, or that their management plan to reduce engagement with emergency department staff might be compromised. This suggests that specific research in a different setting, such as community mental health services, needs to be conducted with these patients to identify any differential treatment needs.

The results also indicated that the repeat group reported significantly greater symptomatology than the first time group, who reported greater symptomatology than the control group. The repeat group reported significantly greater interpersonal sensitivity, phobic anxiety, and paranoid symptoms. In addition, the repeat group reported more severe symptoms than the first time group and a trend for greater depressive, anxiety and number of symptoms compared to the first time group. There was no significant difference between the first time and repeat group for somatization, hostility, and psychotic symptoms although these were experienced significantly more than the control group.

This result is generally consistent with previous research (Johnsson Fridell, Ojehagen, & Traskman-Bendz, 1996; Joiner, Rudd, Rouleau, & Wagner, 2000; Rudd et al., 1996). The profile for the repeat group is similar to that reported by Johnsson Fridell et al. who used the longer version of the symptomatology measure used in this study. However, one difference between this study and previous research in the symptomatology profile is the finding of similar levels of hostility and psychotic symptoms for the first time and repeat groups. Previous research suggested that the repeat group would display greater hostility and psychotic symptoms (Johnsson Fridell et al., 1996; O'Connor et al., 2000). This difference can be accounted for by methodological differences. In contrast to Johnsson Fridell et al. (1996) and O'Connor et al. (2000), this research excluded patients with psychotic symptoms or disorders. Consequently, a low level of psychotic symptomatology in both the first time and repeat groups would be expected in this sample. In addition, the patients with more severe personality disorders were excluded by clinicians. Thus, a lower level of hostility symptoms associated with personality disorders such as borderline personality disorder would be expected for both groups.

The expected difference between the first time and repeat groups for alcohol and drug use was not clearly demonstrated. The results indicated that the repeat group scored significantly greater alcohol and drug use than the control group. Although the repeat group scored higher than the first time group the difference did not reach significance. The repeat group scored a mean alcohol use in the alcoholic range according to the MAST, and 19% of the sample engaged in polysubstance use. The first time group did not score in the alcoholic range of the MAST and were not significantly different from the control group in their level of substance abuse. This suggests that the differences between attempted suicide and control samples for substance abuse may be attributable to the repeat group.

It has been reported that intoxication often precedes suicide attempts (Apter & Freudenstein, 2000). Indeed in this study, over half of the repeat group and 25% of the first time group had consumed alcohol at the time of the overdose. It has been proposed that intoxication may lead to impaired judgment and decreased inhibition, and therefore, may facilitate suicide attempts (Apter & Freudenstein, 2000; Rossow,

Romelsjo, & Leifman, 1999). This study suggests support for a role of this mechanism in substance use and attempted suicide.

The final aim of the study was to determine whether there were any specific characteristics of the suicide attempt associated with the repeat group. The results indicated that the repeat group was significantly more likely to take major tranquillisers and antidepressants for their overdose. However, the most frequently taken medications for both the first time and repeat groups were minor tranquillisers and salicylics. The repeat group was also significantly more likely to take more than two different types of medications and there was a trend for a greater proportion of the repeat group to have been consuming alcohol at the time of the overdose. However, there was no significant difference in the number of pills swallowed for the overdose.

The medications taken for the overdose are consistent with previous research in Australia. Carter et al. (1999) reported that those who repeated in a follow-up period were more likely to take psychotropic medications prescribed for them. Owens et al. (1994) also demonstrated that the repeat group was more likely to take more than one medication. The frequent use of minor tranquillisers and salicylics for an overdose is consistent with the availability of these medications. Salicylics are easily purchased without a prescription, and minor tranquillisers are frequently prescribed in Australia (Australian Bureau of Statistics, 1999).

For suicide intent and lethality, no significant differences between the first time and repeat groups were demonstrated. The results indicated that the mean suicide intent was in the moderate range with all levels of intent represented in both the first time and repeat groups. Pierce's (1977) intent scale has been criticised for the excessive importance placed on self-report. It has been recommended that all subscales need to be considered due to individuals who may overdramatise or amplify their intent (Scocco, Marietta, Tomietto, Della Buone, & De Leo, 2000). However, even on the more objective circumstances subscale, no significant differences were evident between the two groups. It may be that any patterns of change in intent were masked within the group. It has been suggested that there may be changes in suicide intent with subsequent attempts and that there is changing risk

over time which may not necessarily be increasing risk (Duffy, 1977; Lester, 1983). These changes in intent may not all be in the one direction due to the influence of other factors such as the consequences of the first attempt. Therefore, changing intent may contribute to the contradictory results demonstrated in the literature for the suicide intent of the repeat group. Future research could examine this by following a group of first ever suicide attempt patients over time. At each subsequent attempt, the participants could be reassessed to determine how factors such as suicide intent had changed with each attempt. This would enable the establishment of different patterns of changes over time, and help to identify any subgroups within the repeat group.

The results from the subscales of the RRRS indicated low risk to life with a high chance of rescue from the act for the majority of the first time and repeat groups. Higher levels of probability of rescue were expected with suicide attempts by overdose as the adverse effects of medication take time to occur. This results in more time and chance of rescue via medical intervention than, for example, someone who has shot themselves. The scores on the RRRS are similar to those reported in other studies (Groholt, Ekeberg, & Haldorsen, 2000; Spirito et al., 1993), and similar percentages in each range for the risk and rescue subscale to Potter et al. (1998). This supports the finding in the majority of the literature of no association between lethality and repetition in a general clinical adult sample (Barnes, 1986; Buglass & Horton, 1974; Kessel & McCulloch, 1966; Kotila & Lonnqvist, 1987; Morgan, Barton, Pottle, Pocock, & Burns-Cox, 1976; Tarter, Templer, & Perley, 1975). However, this does not exclude the possibility that at the individual level there are changes in lethality with subsequent attempts reflecting different processes which may also be masked in this type of analysis. This too could be further studied in a longitudinal follow-up of first time attempt patients.

For impulsiveness of the attempt, there was a significant difference between the first time and repeat groups. The first time group was significantly more likely to report an impulsive attempt with no premeditation whereas the repeat group was more likely to report that they had planned it for more than one day. Despite this difference, the majority of both groups reported that the attempt was impulsive, as has been reported in previous research (De Moore & Robertson, 1996; Welcher &

Nordentoft, 1993). This suggests that there may be at least two subgroups in the repeat group, those who make impulsive subsequent attempts, and another who plan their behaviour to a greater extent. Batt et al. (1998) have also suggested that there may be different patterns of impulsiveness in the repeat group. Future research could also examine first time suicide attempt patients on their impulsiveness of the attempt longitudinally to identify any subgroups.

The absence of significant lethality and intent differences between the first time and repeat groups is somewhat discordant with the behaviour of the repeat group. The repeat group were significantly more likely to take more than one type of medication, were more likely to take antidepressants and major tranquillisers, and to consume alcohol at the time of the overdose. In addition, a greater percentage were more planned than the first time group. However, the medically rated risk subscale of the ISS, and the lethality rating did not reflect greater lethality. Taking a process-based perspective, it may be that for some of the repeat group taking a repeat overdose may have developed into a more elaborate behaviour. It may be that there are some repeat participants who spend more time preoccupied and ruminating about taking a further overdose. Their subsequent attempt may reflect a more elaborate attempt than their first by taking more than one medication and consuming alcohol without a change in intent or lethality. An alternative perspective is that those who plan more may intend greater lethality but the lack of knowledge about medications may not translate into increased medical risk. As the repeat group was more likely to take antidepressants, it may be that the increased prescription of SSRIs masked any lethality differences. However, there was no significant correlation between taking antidepressant medication, nor major tranquillisers which also differentiated first time and repeat groups, and belief that the medication would cause death. This suggests that there may be a subgroup who become more preoccupied or ruminative about suicidal behaviour, resulting in a more involved subsequent attempt of similar suicidal intent.

On the motivation for the attempt scale, the tension reduction subscale differentiated the first time and repeat groups. The repeat group was significantly more likely to report being motivated for tension reduction reasons. Tension reduction has been associated with repetition in the literature. Repetitive self-

poisoning has been described as a maladaptive coping strategy for distress (Lieberman & Eckman, 1981) where the individual uses self-harm behaviours to eliminate the tension associated with the uncomfortable emotional state (Crowe & Bunclark, 2000; Kiev, 1989). Indeed, repetitive self-poisoning is often utilised by individuals diagnosed with borderline personality disorder as a dysfunctional escape behaviour from intensely painful negative affect (Shearin & Linehan, 1994). Although tension reduction has previously been implicated in repetition, it has not been demonstrated as motivational characteristics specific to repetition. Symptoms of hostility and tension reduction have been associated in the adolescent literature, and they were significantly correlated in this study (Hazell, 2000). It may be that for a subgroup of those who have made prior attempts, any situation that results in escalating affect, particularly symptoms of hostility, may result in the suicidal mode being triggered.

4.4.1 Treatment implications

The profile of those who make repeat suicide attempts developed from this study has several important treatment implications for adult overdose patients. The first relates to the treatment of psychopathology. Although the majority of both the first time and repeat groups were experiencing current psychopathology, the repeat group reported experiencing symptoms of greater severity and greater distress from the symptoms than the first time group. The most severe symptom for both groups was depressive symptoms. In addition, the most strongly reported motivation by both groups was depression. Given the large proportion of the sample that were diagnosed with a mood disorder, this result is not surprising. However, it adds support to one of the current suicide prevention strategies in Australia which focuses on treating depressive symptoms and mood disorders (Webster, 1998).

The prominence of depressive symptoms and depression as a motivation in this clinical adult sample indicates the importance of psychological treatments for this group. Previous research has reported that the cognitive and affective symptoms of depression are more strongly related to suicidality than vegetative symptoms. Consequently, it has been suggested that psychological factors may have a more direct and immediate effect on suicidality than pharmacotherapy directed at biological symptoms (Beck & Weishaar, 1990). This indicates the importance of

psychological treatments of depression for both the first time and repeat overdose patients.

A complicating factor for such treatments was the finding of significant substance abuse amongst the repeat group. The repeat group was significantly more likely to engage in alcohol and drug use than the control group and tended to engage in greater alcohol use than the first time group. In addition, there was a trend for a greater percentage of the repeat group consuming alcohol at the time of the overdose. This indicates that repeat group, in particular, need to have substance abuse problems integrated into their treatment regime. Although the role of substance abuse is well recognised amongst those who have attempted suicide, it is often left untreated as these patients are more difficult to engage in services (Hawton, Simkin, & Fagg, 1997). It has been suggested that some patients may need a coordinated treatment program of a substance abuse program and psychological treatments for the individual's suicide risk factors such as problem solving or affect regulation (Hawton & van Heeringen, 2000). This research suggests that those who repeat, in particular, need to be considered for such coordinated treatment programs.

The finding of the differential motivations of tension reduction for the repeat group also has treatment implications. This result highlights the importance of affect regulation in treatments for those who repeatedly make suicide attempts. Some therapies currently address affect regulation, in particular, dialectical behaviour therapy has a component focussing on strategies for regulating affect. This may contribute to the promising results of this therapy (Kehrer & Linehan, 1996).

4.4.2 Limitations

The conclusions drawn from this study are limited to the type of sample used. The sample was not a consecutive sample of intentional self-poisoning patients and of those referred to the study, the participants were then self-selected. Consequently, the sample may not be representative of all individuals who have taken an intentional overdose. Indeed, most of those participating in the research had been diagnosed with a mood disorder. Therefore, the results may not be generalisable to those engaging in intentional self-poisoning who have a different primary diagnosis. In

addition, the control sample presents some limitation. The control participants were volunteers who responded to advertising at the hospital and in the general community. Future research may benefit from using a matched control group of patients admitted to hospital for reasons other than a suicide attempt.

To identify those patients for whom the results of this study may be less applicable to, those who met the criteria and did not participate irrespective of the reason were compared with those who did participate. There were no significant differences between the groups for age, sex, repetition status, or Axis II diagnosis. The only significant difference was that the non-participating group was significantly less likely to have a psychiatric history and a trend for a difference in the type of Axis I diagnosis. This is not consistent with previous research which has suggested that those who do not participate tend to be younger males (Barnes, 1986; Hjelmeland, 1996). However, De Leo et al. (1999) recently reported an absence of sex, age, marital, employment and repetition status differences between those interviewed and not interviewed.

This result suggests that the non-participating group had not previously engaged with a mental health service. Although not significant, the diagnoses for the non-participating group were less severe with a proportion of the non-participating group not receiving a psychiatric diagnosis compared to none in the participating group. This suggests that a group of those who choose not to participate may be the individuals in the community who experience a crisis and are less likely to be psychiatrically ill. These individuals may require different services to those engaged in the psychiatric system. This is consistent with a recent Spanish study that reported that patients not attending their community mental health follow-up were not likely to have a severe mental illness. The authors speculated that this group may consider mental health centres as unsuitable for their problems which were more likely to be interpersonal (Jauregui, Martinez, Rubio, & Santo-Domingo, 1999). Therefore, less psychiatrically-oriented services may be a more appropriate setting for post-attempt treatment in this group. These non-participating patients need to be actively pursued for research to establish their treatment needs. It may be that these individuals are currently not engaging in any follow-up after their suicide attempt and remain at risk of further suicide attempts.

The results of this study are also limited by the relatively small sample size. For practical reasons only a small-moderate sample size could be interviewed. This limits the power of the analyses and may result in an increase in type II errors. Thus, it is difficult to know if the results that were reported as trends in this and the following studies may be significant when a larger sample size is examined or if they are nonsignificant. Thus, the trends noted in this research would need to be examined with larger sample size to establish if they are significant in the study of repetition of suicidal behaviours.

A further limitation of this study was the time between the suicide attempt and interview. The median time between overdose and interview was 19 days. This occurred mainly for the practical reasons of interviewing only when medically stable and when approval was received by the staff involved in patient care. Such a time delay is not unusual in research examining suicidal behaviours (Kienhorst, De Wilde, Diekstra, Wolters, 1995; Michel, Valach, & Waeber, 1994), and it has been reported that symptomatology can be accurately recalled two months later (Hart, Coleman, & Russell, 1987). However, some researchers have suggested that the reliability of self-report data may reduce with time, particularly suicide intent as the patient has time to reflect on the attempt, suppress it or be influenced by the environment (Hjelmeland & Loa Knizek, 1999). Correlations between the time between the suicide attempt and the interview for all measures in this study indicate no significant associations. Nevertheless, future research could examine intentional self-poisoning patients who have more recently overdosed to reduce the possibility of reduced reliability of the self-report data.

Another limitation of the self-report nature of the research is the possibility of denial of previous attempts. This may affect the classification of patients into first time and repeat groups, and may obscure possible differential characteristics. One study reported that 10% of people who the authors knew from records had a previous attempt denied the attempt (Bille-Brahe, Jessen, & Jensen, 1995). However, in this study clinicians classified the patient as making a first attempt or repeat attempt according to hospital records and this was reassessed in the interview via self-report.

Therefore, it is expected that denial of previous attempts would have minimal influence on the results.

Finally, the implications of the results are to some extent circumscribed by the further compromises necessary for the experimental procedure to be practically viable. Although verbal administration was considered the preferred method of administration for the development of rapport and for the patient to obtain benefits from participation, the questionnaires in this study do not appear to have been validated for the verbal administration procedure. In addition, the interviewer was not blind to the patients group status. Consequently, the possibility that the results may be affected by interviewer and respondent biases cannot be ruled out. Finally, the order of presentation of the questionnaires was not counterbalanced. Although fatigue effects were accommodated in the procedure, this issue needs to be considered in future research.

4.5 Conclusion

In summary, the results of this study suggest that in an Australian adult sample of intentional self-poisoning patients it is difficult to differentiate those who repeat using demographic characteristics. Only employment status differentiated the first time and repeat groups, with the repeat group less likely to be in current paid employment. This implies a poorer level of functioning by those who repeat. High levels of psychopathology were demonstrated for both the first time and repeat groups. Despite similar psychopathology, the groups were differentiated by symptomatology. The repeat group reported symptoms of significantly greater severity and experienced significantly greater distress than the first time group. The repeat group also reported significantly more drug and alcohol use than the control group who used substances at a similar level to the first time group. In regard to the suicide attempt, a greater percentage of the repeat group had planned the act for more than one day although the majority of both the first time and the repeat group reported that the behaviour was impulsive. The repeat group reported that they were more motivated to attempt suicide for tension reduction compared to the first time group. However, both groups were most motivated for depressive reasons. The two

groups could not be differentiated by level of suicide intent or lethality although the repeat group was significant more likely to take more than one medication and take major tranquillisers or antidepressants.

This profile of repeat overdose patients has identified important targets for intervention. The results of this study reinforce the importance of current treatment approaches focussing on depression, particularly, psychological treatments of depression for both first time and repeat groups. The results also indicated the importance of integrating substance abuse programs into treating suicidality, in particular for those who repeat. In addition, this study demonstrated that affect regulation may need to be addressed specifically in repetition.

Chapter 5

Cognitive-behavioural factors associated with repeat suicide attempts

5.1 Introduction

The research reported in Chapter 4 has suggested that those who make repeat suicide attempts have more severe symptomatology and high levels of drug and alcohol use. In addition, those who repeat were more motivated for tension reduction reasons although most reported depressive reasons. The majority of those who repeat made impulsive attempts but approximately one third took a planned overdose. These results have indicated the importance of psychological therapies to address symptom management, particularly the build-up of tension.

The aim of the next two chapters is to add to this profile of those who make repeat attempts. This chapter presents a review of the cognitive-behavioural literature in relation to repetition. Cognitive-behavioural factors are important to examine for several reasons. Firstly, the cognitive-behavioural model of suicidality underlines the importance of examining repetition and it appears to be the most comprehensive model of repetition currently available (Rudd, 2000a). Therefore, identifying the cognitive-behavioural factors associated with repetition that can be interpreted using this model may contribute to an improved understanding of repetitive suicidal behaviour. In addition, cognitive-behavioural factors are directly amenable to treatment. Consequently, any differential cognitive-behavioural characteristics associated with repetition will have important treatment implications. Such implications may aid in the development of more specific interventions for this group which may improve benefits currently derived from generic interventions.

The literature indicates many cognitive-behavioural factors associated with attempted suicide. These include high levels of hopelessness, problem solving impairments, maladaptive coping, cognitive distortions, negative attributions, dysfunctional attitudes, irrational beliefs, and few reasons for living (Ellis & Ratliff, 1986; Hawton & Catalan, 1987; Spirito, Frances, Overholser, & Frank, 1996; Weishaar, 2000). Establishing such a profile has enabled the development of cognitive-behavioural therapies, in particular problem solving based therapies, to treat attempted suicide. These cognitive-behavioural based treatments have demonstrated promising results in symptom reduction and in decreasing the proportion of those repeating the behaviour (Atha, Salkovskis, & Storer, 1992;

Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Rudd, Joiner, Jobes, & King, 1999; Salkovskis, Atha, & Storer, 1990). However, the benefits of cognitive-behavioural based treatment may be increased if such therapies are targeted more specifically to particular subgroups. For example, dialectical behaviour therapy is targeted at suicidal behaviours exhibited by those with borderline personality disorder with success (Linehan et al., 1991).

Process-based models of suicidality suggest that there will be differences between individuals who are at different stages of the suicidal process in their characteristics and factors related to their suicidal behaviour. Changes in factors associated with suicidality may occur over time and with subsequent attempts due to the reinforcement associated with the behaviour and its consequences. Thus, there may be changes in cognitive-behavioural factors associated with attempted suicide. The cognitive-behavioural model of suicidality posits that there will be differences between first time and repeat groups due to the suicidal process. This model proposes that one reason that repeat attempts may eventuate is the absence or impairment of compensatory modes. Compensatory modes are schemas that lower risk and allow recovery from an active suicidal mode (Rudd, Joiner, & Rajab, 2001). These compensatory modes may include cognitive and behavioural coping strategies such as problem solving, and coping resources which would contribute to the deactivation of the suicidal mode (Joiner & Rudd, 2000; Rudd et al., 2001). For those making repeat attempts, the impairment of compensatory modes may be more severe than for those making a first attempt, resulting in a reduced ability to deactivate the suicidal mode. Consequently, it may be that those who have made repeat attempts may lack or be impaired in their use of adaptive coping strategies and coping resources.

The cognitive-behavioural model also suggests that those who repeat may have different levels of hopelessness and maladaptive cognitions compared to those who have made a first attempt. The model proposes that those who make repeat attempts may have chronic hopelessness consistent with their personality disturbance. When the suicidal mode is triggered, then the hopelessness associated with the cognitive system of the suicidal mode adds to the existing hopelessness (Rudd et al., 2001), so greater levels of hopelessness can be expected. The

cognitive-behavioural model also suggests that an attempt may result in the process of sensitization and generalisation of triggers for the suicidal mode. Such triggers may be external events or internal triggers such as cognitions. It may be that there is a sensitization of cognitive triggers and a generalisation of maladaptive cognitions including irrational beliefs. This may result in more maladaptive cognitions that may be more easily triggered due to the sensitization from the first attempt. Consequently, it may be that those making a repeat attempt have more maladaptive cognitions.

In summary, this chapter examines several cognitive-behavioural factors that have been identified as significant to attempted suicide in relation to repetition. The literature concerning coping, problem solving, cognitive distortions such as irrational beliefs, and hopelessness is examined with a particular focus on repetition. Identification of differential cognitive-behavioural characteristics associated with those who make repeat attempts will have treatment implications for psychological therapies, as well as implications for the theory-based understanding of repetition.

5.2 Coping

Suicidal behaviour has been described as a form of maladaptive coping (Sakinofsky, 2000; Salander Renberg, 1999). More specifically, individuals who engage in repeat suicide attempts have been described as having poor coping skills and having poor coping histories (Reynolds & Eaton, 1986; Sakinofsky, 2000). However, there appears to have been little research examining coping associated with individuals who attempt suicide or engage in repeat suicide attempts. Consequently, it is not clear which strategies or resources repeat attempt patients possess or lack prior to the attempt.

Two components of the coping process are coping strategies and coping resources. Coping strategies are cognitive and behavioural strategies used by individuals to manage internal and/or external demands seen as going beyond their resources (Folkman & Lazarus, 1985). They play a major role in an individual's physical and psychological well being when experiencing negative or stressful life

events. They mediate between antecedent stressful events and outcomes such as anxiety, depression, psychological distress, and somatic complaints (Endler & Parker, 1990). Coping strategies include problem solving, emotional expression, and social withdrawal.

In contrast, coping resources are the inherent resources enabling a person to handle stressors effectively (Hammer & Marting, 1988). Coping resources act as background factors whereas coping strategies are behaviours occurring after the appearance of the stressor (Wheaton, 1983). Adequate coping resources allow an individual to experience fewer symptoms and of a reduced intensity when exposed to a stressor, and to recover more quickly from stressors (Hammer & Marting, 1988). Having a good social network, or having a positive outlook on life are examples of a social and cognitive coping resource.

The direction of the relationship between coping strategies and coping resources is not clear. It has been speculated that suicidal behaviour may result when resources are low and the strategies used to cope repeatedly fail (Yufit & Bongor, 1992). However, it may be that ongoing maladaptive coping efforts deplete coping resources over time. This is consistent with process-based models of suicidality suggesting that there may be deterioration over time. Alternatively, poor coping may be the result of an individual's depleted coping resources which leaves them vulnerable for further maladaptive coping strategies such as suicide attempts (Kurtz & Derevensky, 1993).

Almost all of the research examining coping and suicidality appears to have used adolescent or young adult samples. This research has indicated that adolescents or young adults who attempt suicide use fewer strategies and these strategies are more likely to be maladaptive or avoidant (Sandin, Chorot, Santed, Valiente, & Joiner, 1998; Wilson et al., 1995). Such strategies are more likely to include wishful thinking and social withdrawal (Rotherum-Borus, Trautman, Dopkins, & Shrout, 1990; Spirito, Frances, Overholser, & Frank, 1996; Weishaar, 1996). In contrast, one study failed to find significant differences between inpatient suicide attempt, inpatient ideation, and non-suicidal inpatient groups for nine coping strategies. They concluded that maladaptive strategies may be characteristic of all psychiatric

inpatients not just those who have attempted suicide. However, this study was limited by the use of only one hypothetical situation to assess coping strategies rather than assessing a personally relevant situation (Spirito et al., 1996).

Impaired coping would be expected for those making repeat attempts. The cognitive-behavioural model has proposed that compensatory modes can deactivate the suicidal mode. Compensatory modes are defined as schemas that “allow for behaviours that lower risk, hasten affective recovery, and provide competing cognitions essential for cognitive restructuring” (p. 33, Rudd, Joiner, & Rajab, 2001). These compensatory modes may include cognitive and behavioural coping strategies and coping resources which would contribute to the deactivation of the suicidal mode (Joiner & Rudd, 2000; Rudd et al., 2001). For those making repeat attempts, the impaired compensatory modes may be more severe than those making a first attempt, resulting in a reduced ability to deactivate the suicidal mode. Consequently, it may be that those who have made repeat attempts may lack or be impaired in their use of adaptive coping strategies and coping resources.

Very little research has been conducted examining the coping strategies of adults who make repeat suicide attempts. Individuals who make repeat attempts have been described as lacking social and emotional coping skills (Lieberman & Eckman, 1981). However, only one empirical study examining a repeat group could be identified. Scholz and Pfeffer (1987) compared a group of depressed inpatients and a group of depressed inpatients who had attempted suicide two or more times. The results indicated no significant differences between the two groups for coping strategies used in a recent stressful situation. Both groups used wishful thinking most frequently, followed by either problem focussed strategies or help-seeking/avoidance strategies. As this study examined only depressed inpatients, it is not clear as to whether a more representative sample of adult repeat attempt individuals would display differences in coping strategies compared to those making their first attempt.

Several coping strategies have been investigated independently and associated with suicidality. Self-criticism is a maladaptive coping strategy that has been associated with attempted suicide (Tobin, Halroyd, Reynolds, & Wignal, 1989).

It has been correlated with hopelessness and suicide risk in adolescent samples, and demonstrated to be a significant predictor of suicide risk in a depressed inpatient sample (Donaldson, Spirito, & Farnett, 2000; Fehon, Grilo, & Martino, 2000; Grilo et al., 1999). An adaptive strategy that has been negatively correlated with suicidal thoughts is emotional expression (Diggs & Lester, 1996). However, neither of these strategies have been investigated in samples of individuals who have made repeat suicide attempts.

There appears to be even less research examining coping resources in relation to repetition. The importance of coping resources in maintaining suicidal behaviour has been highlighted (Kurtz & Derevensky, 1993; Linehan, 1987). Inadequate coping resources, in addition to low distress tolerance and parasuicidogenic expectations, have been proposed to keep suicidal behaviour high in the repertoire of problem solving behaviours (Linehan, 1987). In addition, coping resources have been proposed as the important factors in the moderation of the duration of a suicidal crisis. For the repeat attempt group, more severe life events were associated with a longer suicidal crisis compared to a single attempt group. This was speculated to be attributable to reduced coping resources (Joiner & Rudd, 2000). Finally, it has been concluded from research examining adolescent suicide that diminished social and personal coping resources remain the most significant contributors toward risk of suicidality during adolescence (Kurtz & Derevensky, 1993). However, no empirical studies examining the coping resources of adults who had repeatedly attempted suicide could be identified. The only resource that appears to have been examined in relation to repetition is social resources. It has been demonstrated that those who made a repeat attempt in a five year follow-up period reported having a poorer social network (Johnsson-Fridell, Ojehagen, & Traskman-Bendz, 1996).

In summary, it appears that those attempting suicide engage in maladaptive coping. However, the specifics of the components of the coping processes in adults making repeat attempts are yet to be elucidated. Establishing the specific coping strategies and resources impairments of those who engage in repetitive suicide attempts may assist understanding suicidal behaviour. In addition, clarification of differences between the groups will provide further targets for intervention.

5.3 Problem solving

One coping strategy that has received considerable attention in the literature is problem solving. As discussed in Chapter 2, the impact of problem solving on suicidality developed from the finding of a cognitive style reflecting cognitive rigidity and dichotomous thinking amongst those who had attempted suicide (Neuringer, 1967; Patsiokas, Clum & Luscomb, 1979). It was proposed that this cognitive style of thinking would result in difficulties generating alternative solutions to deal with emotional problems. This may result in the individual feeling overwhelmed by their problems, progressively more hopeless and at greater risk of suicidal behaviour (Pollock & Williams, 1998).

The diathesis-stress-hopelessness model of suicidal behaviour was proposed to account for the role of problem solving in suicidality (Schotte & Clum, 1987). This model proposed that cognitive rigidity would cause difficulties with problem solving which would act as the diathesis and mediate the relationship between stress and hopelessness resulting in a vulnerability for suicidal behaviour. Research examining interpersonal problem solving with suicidal and non-suicidal groups indicated that those who were currently suicidal or had recently attempted suicide experienced particular interpersonal problem solving impairments. These included difficulty generating solutions, being less active and taking a more passive approach to problem solving, and relying on others to solve their problems (Linehan et al., 1987; McLeavey, Daly, Murray, O'Riordan, & Taylor, 1987; Orbach, Bar-Joseph, & Dror, 1990). However, the link between impaired problem solving and hopelessness was not clearly established suggesting a more complex relationship between stress, problem solving and hopelessness (Weishaar & Beck, 1990).

This research typically examined interpersonal problem solving using the Means-Ends Problem Solving Test (MEPS; Platt, Spivack, & Bloom, 1975). It is a measure of actual problem solving skills and assesses an individual's problem solving skills in a hypothetical social situation. The diathesis-stress-hopelessness model was expanded to include perceived problem solving when research suggested that those who attempt suicide had a general maladaptive orientation towards problems (Dixon, Heppner, & Anderson, 1991). Perceived problem solving is an

individual's self-appraisal of their problem solving skills in interpersonal situations. It was proposed that perceived problem solving impairments, also called poor problem solving appraisal, may interact with life stress to result in hopelessness and suicidal ideation. The proposed mechanism was that a negative self-appraisal of problem solving skills would result in focussing on the potential negative consequences of implementing a potential solution (Rudd, Rajab, & Dahm, 1994).

Research has indicated that perceived problem solving is related to suicidality. Perceived problem solving has been linked to hopelessness and suicidal ideation (Bonner & Rich, 1988; Clum & Febbraro, 1994; Dixon et al., 1991). Recent research using structural equation modelling has provided evidence of a direct link from perceived problem solving to suicidality. The results indicated that perceived problem solving mediated the relationship between poor self-efficacy and poor interpersonal problem solving skills to result in a suicide attempt (Dieserud, Roysamb, Ekeberg, & Kraft, 2001). This suggests the importance of perceived problem solving and problem solving skills in suicidality.

The cognitive-behavioural model of suicidality implies that those who make repeat attempts may have impaired problem solving. As discussed, the model suggests that active compensatory modes result in behaviours that lower risk and enable cognitive restructuring. If an individual has impaired problem solving, then they would be less able to think of and enact problem solving behaviours to counteract the suicidal mode. Those who make repeat attempts may have more severe impairments of problem solving resulting in a reduced ability to deactivate the suicidal mode. Consistent with the literature, poor perceived problem solving may result in an increased risk for suicide attempts.

Research has indicated that those who make repeat attempts may have greater impairments in their problem solving skills and perceived problem solving ability. Problem solving skill impairments have been demonstrated in groups of adults and adolescents. Those with a history of attempts were demonstrated to be less able to solve problems than those without a history of attempts (Hatwon et al., 1999; Linehan, Camper, Chiles, Strosahl, & Shearin, 1987). In addition, perceived problem solving impairments have been demonstrated for those making repeat

attempts (Hawton et al., 1999). Individuals who repeat have been reported to see their problems as more severe than those who do not repeat (Sakinofsky & Roberts, 1990). Also, perceived problem solving impairments have been demonstrated for those who repeat within three months of their first attempt. This group perceived themselves as less effective in solving problems, more passive and needing to rely on others to a greater extent than those who engaged in a single incident (Scott, House, Yates, & Harrington, 1997). A further study examining perceived problem solving indicated more detailed components of the perceived problem solving impairment. A sample of young adult military psychiatric patients who had made multiple attempts reported less problem solving confidence, and less personal control over their emotions and behaviour when solving problems compared to single attempt participants. In addition, for those participants who stated clear suicidal intent, they reported using a greater avoidance of problem solving (Rudd et al., 1996).

Despite a relatively low number of studies examining problem solving impairments amongst those who make repeat attempts, the treatment approaches have recognised the importance of problem solving when treating individuals who make repeat attempts (Kehrer & Linehan, 1996; Salkovskis, Atha, & Storer, 1990). Dialectical behaviour therapy (DBT) addresses the repetitive suicidal behaviour of patients with borderline personality disorder and includes a large problem solving component. As discussed, DBT has demonstrated promising results in the reduction of repetition and distress (Kehrer & Linehan, 1996). Also, problem solving therapy has been reported to be an effective short-term treatment for depression, hopelessness, and suicidal ideation for those who repeat compared to treatment as usual. In addition, the authors also concluded that there was evidence for a reduction in repetition in the six months post-treatment (Salkovskis et al., 1990).

It is not clear if the impairments in problem solving represent state or trait characteristics as the literature supports several possibilities. It may be that those who are suicidal have trait impairments in problem solving resulting in less effective and more passive solutions generally. Alternatively, there may be a subgroup of those who attempt suicide with trait problem solving impairments and/or others whose impairments are related to episodes of mood disturbance (Williams & Pollock, 2000). As those who make repeat attempts report greater levels of distress

and mood disturbance prior to the attempt, the state explanation for greater impairments in problem solving is tenable. Alternatively, as those who repeat suicide may have more severe perceived and actual problem solving impairments, this subgroup may represent those with trait impairments (Hawton et al., 1999). Longitudinal research is required to establish the role of mood and trait problem solving in relation to suicidality (Williams & Pollock, 2000).

In summary, the literature suggests that problem solving impairments are an important feature of those who make repeat suicide attempts. Despite the relevance of problem solving being demonstrated in the treatment literature to reduce repetition, there are relatively few studies examining the features of perceived problem solving amongst those who make a first and repeat attempt in adult samples. The study by Rudd et al. (1996) suggests that those making their first attempt have less severe perceived problem solving impairments than those who repeat. However, this was established in a sample of young adult psychiatric patients. Further studies need to examine problem solving in a general clinical sample of adults making a first or repeat attempt to establish this difference.

5.4 Maladaptive cognitions

It has been suggested that maladaptive coping behaviours such as suicidal behaviour may be activated by maladaptive cognitions (Heard, 2000). Cognitive distortions, dysfunctional attitudes, and irrational beliefs are maladaptive cognitions that have all been associated with suicidal behaviour (Ellis & Ratliff, 1986; Weishaar, 2000). It has been proposed that these factors may limit an individual's ability to access alternative perspectives on a situation and may result in faulty conclusions. In addition, these maladaptive cognitive features can cause high levels of negative affect. Both negative affect and faulty conclusions may contribute to feelings of hopelessness placing the individual at an increased risk of suicidal behaviour (Weishaar, 2000).

Research has indicated that irrational beliefs are a form of maladaptive cognition associated with suicidality. It has been demonstrated that a suicidal

psychiatric inpatient group reported greater levels of irrational beliefs compared to a nonsuicidal psychiatric inpatient group. In addition, irrational beliefs have been associated with suicide potential in a large sample of high school and college students (Woods, Silverman, Gentilini, Cunningham, & Grueger, 1991). However, there appears to have been no research examining irrational beliefs in relation to repetition.

The specific mechanism for the role of irrational beliefs in suicidality has been discussed by Woods et al. (1991). Two pathways for irrational beliefs' association with depression and suicidality have been proposed. Firstly, it has been suggested that suicidal contemplation may be a consequence of the irrational schema. Depending on what is emphasised by the individual's schema, the irrational schema itself may lead to the contemplation of suicide. For example, thoughts such as 'if others do not show their love or approval, I must be worthless' may lead to the conclusion that life is not worth living resulting in contemplation of suicide. The alternative pathway may be that suicide contemplation is a consequence of the irrational thinking about the individual's own feelings of depression or emotional discomfort. For example, 'I can't stand feeling this way and since I can't do anything about it life is not worth living' (Woods et al., 1991). Both pathways are consistent with the cognitive-behavioural model of suicidality where such schemas would be contained in the cognitive system of the suicidal mode and reflect the core beliefs of unlovability, helplessness, and poor distress tolerance (Rudd et al., 2001).

Process-based theories suggest that there may be different types of irrational beliefs or greater levels of irrational beliefs associated with repetition. It may be that specific beliefs are reinforced after the first attempt and become stronger with subsequent attempts. This may result in more extremely held specific beliefs being associated with repetition. This is similar to the idea of sensitization of cognitive triggers based in the cognitive-behavioural model of suicidality. This process of sensitization of triggers may result in those making repeat attempts having more extreme irrational beliefs. In addition, the cognitive-behavioural model proposes a process of generalisation of triggers for the suicidal mode suggesting that those who make repeat attempts may have a greater number of irrational beliefs.

In summary, it appears that there has been no research examining differences in irrational beliefs associated with first time and repeat attempt groups. Identifying irrational beliefs is important as it can provide direct targets for intervention. Reducing irrational beliefs will reduce emotional distress, and may help the adoption of an alternative perspective which may decrease the need to employ suicidal behaviours. Future research needs to examine any differential cognitive characteristics, such as irrational beliefs, associated with those who make repeat attempts, in order to build the cognitive aspect of the profile of those who repeat.

5.5 Hopelessness

As discussed, the impact of poor coping strategies and irrational beliefs on suicidality may be mediated by hopelessness. Hopelessness is a cognitive variable conceptualised as a schema that incorporates attitudes reflecting negative future expectancies (Beck, Kovacs, & Weissman, 1975; Weishaar & Beck, 1990). In the suicide literature, hopelessness has been typically measured using the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974). This questionnaire examines pessimistic cognitions reflecting negative expectancies about the immediate and long-range future (Beck & Steer, 1987). Such research has indicated that hopelessness is the variable most consistently associated with suicidality (Weishaar, 2000). Specifically, hopelessness has been demonstrated to be consistently related to suicide ideation, suicide intent, and completed suicide in clinical samples (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck & Steer, 1989; Beck, Steer, Kovacs, & Garrison, 1985).

Process based theories suggest that those making repeat attempts may have greater levels of hopelessness. These theories suggest that there may be increasing hopelessness with subsequent attempts, due to the various reinforcements associated with the attempt and its consequences. Although there may be a short-term improvement in mood, the repeated occurrence of similar problems or recurrence of intense distress could impact on the expectancy of positive and negative events in the future, resulting in increasing hopelessness over time. In contrast, the cognitive-behavioural model of suicidality proposes a trait explanation for the increased

hopelessness in the repeat group, specifically that those who make repeat attempts have pervasive, chronic hopelessness that is consistent with the individual's personality disturbance. When the suicidal mode is triggered, there is additional hopelessness associated with the suicidal mode called source hopelessness. Consequently, when the individual is suicidal they may be experiencing both pervasive hopelessness from the personality disturbance and source hopelessness associated with the suicidal mode (Rudd et al., 2001). Despite different explanations being proposed, theories concerning repetition suggest that those making repeat attempts would have greater levels of hopelessness.

Although research has strongly tied hopelessness to attempted and completed suicide, there appears to be only limited literature examining hopelessness and repetition. The studies using a prospective definition of repetition have demonstrated support for a significant relationship between repetition and hopelessness (Weishaar, 2000). Studies following patients who have made a suicide attempt for up to one year indicated that those who repeat report greater levels of hopelessness during the follow-up period. These studies have included general hospital patients and intensive care patients (Brittlebank, Cole, Hassanyeh, Kenny, & Scott, 1990; Ojehagen, Danielsson, & Traskman-Bendz, 1992). This greater level of hopelessness has been demonstrated to be a powerful predictor of repetition up to six months after the index attempt (Petrie & Brooks, 1992; Petrie, Chamberlain, & Clarke, 1988; Sidley, Calam, Wells, Huges, & Whitaker, 1999).

However, in the studies using a retrospective definition of repetition the relationship is less clear. One study examining suicide attempt patients reported that those who had made previous acts of suicidal behaviour had significantly higher scores for hopelessness than those without prior suicidal behaviour (Ashton, Marshall, Hassanyeh, March, & Wright-Honari, 1994). However, hopelessness was reported to be moderated by the level of suicidal intent. It was demonstrated that only those in the repeat group who reported clear suicidal intent reported significantly greater hopelessness compared to a first attempt group. No significant difference was reported between the first time and repeat groups if all levels of suicidal intent were included (Rudd et al., 1996). Finally, one further study of individuals presenting to an emergency department after a suicide attempt did not

find a significant difference between first time and repeat groups (Reynolds & Eaton, 1986).

The mechanism for the impact of hopelessness on suicidality, including repetition, has been examined. For attempted suicide samples, hopelessness was deconstructed using the adapted fluency paradigm. This method of cognitive psychology involves individuals who have attempted suicide generating anticipated positive and negative events in the immediate and longer term future. The results indicated that the suicide attempt patients were significantly less able to think positively about the future but experienced the same level of anticipation of negative events compared to controls (MacLeod, Pankhania, Lee, & Mitchell, 1997; MacLeod & Tarbuck, 1994). As those making repeat attempts may have more severe levels of hopelessness, it would be expected that the repeat group would have greater impairments in generating positive future events. Only two studies could be identified that examined repetition and the components of hopelessness. One study using a prospective definition of repetition indicated that future fluency for positive events did not predict repetition (Sidley et al., 1999). However, another study using a retrospective definition of repetition indicated that a group of patients with personality disturbance who had made repeat attempts scored significantly lower on positive future thinking, but were no different to volunteer controls in negative future thinking (MacLeod et al., 1998). It is not clear whether these differences in future thinking are greater than those reported amongst general samples of patients who had attempted suicide, as this sample was not compared to a single attempt group. Consequently, the mechanism of hopelessness in relation to repetition is still to be established.

In summary, it appears that hopelessness is a relevant variable for understanding repetition. The limited research has typically demonstrated a relationship between repetition and greater levels of hopelessness using a prospective definition of repetition. The high levels of hopelessness amongst those who repeat may reflect impairments in generating positive future events. However, further research is required comparing first time and repeat groups to establish the extent of hopelessness amongst those who repeat in a clinical sample of adults.

5.6 Conclusion

This chapter has highlighted the importance of cognitive-behavioural factors in relation to suicidality. The literature suggests that those who make repeat suicide attempts may have a different profile of cognitive-behavioural factors although some areas of the literature have not considered the subgroups of repeat and first time attempt groups. To date, reduced coping strategies and resources have been implicated in repetition but this does not appear to have been empirically examined. In addition, the literature suggests that those who repeat report greater perceived problem solving impairments and greater levels of hopelessness. However, the empirical literature presents only research examining perceived problem solving and hopelessness in a general clinical adult sample comparing groups at different stages of the suicidal process. Finally, the literature concerning irrational beliefs indicates a lack of empirical research with those who make repeat attempts. It would be beneficial for research to identify differential cognitive-behavioural characteristics for those who repeat compared to those who have made their first attempt. Identification of such characteristics that are directly treatable may result in more specific treatments for those who repeat.

Chapter 6

Cognitive-behavioural factors associated with repeat intentional self-poisoning

6.1 Introduction and Hypotheses

The literature has indicated that it may be beneficial to identify differential cognitive-behavioural characteristics for a group of individuals who have made repeat suicide attempts compared to a first attempt group. Therefore, the aim of this study was to examine cognitive and behavioural factors associated with repetitive intentional self-poisoning. An adult clinical sample of first time and repeat intentional self-poisoning patients were compared to a matched control group on the variables of coping strategies, coping resources, perceived problem solving, irrational beliefs, and hopelessness. It was expected that the repeat group would report more frequent use of maladaptive coping strategies and/or reduced use of adaptive coping strategies, poorer coping resources, poorer perceived problem solving, greater levels of irrational beliefs and greater levels of hopelessness compared to the first time group. In addition, it was expected that the first time group would score more poorly on these variables than the control group.

6.2 Method

6.2.1 Participants

The participants in this study were the same participants reported in the research described in Chapter 4. They were 59 patients who had attended the Emergency Department of a suburban general hospital or had been admitted to a private psychiatric clinic after an intentional overdose of medication ($n = 28$ first time group, $n = 31$ repeat group). The control participants were 30 individuals selected as described in Chapter 4.

6.2.2 Materials

A number of standard questionnaires were administered.

Coping Strategies Inventory

The Coping Strategies Inventory (CSI; Tobin, Halroyd, Reynolds, & Wignal, 1989) is a 72 item self-report instrument designed to assess cognitive and behavioural coping strategies used in stressful situations. Participants were asked to describe a recent stressful event and then rate on a five point scale the extent to which they used specific coping strategies during that event. The items are summed for each of the eight primary scales; problem solving, cognitive restructuring, emotional expression, social support, problem avoidance, wishful thinking, self-criticism, and social withdrawal. These combine into secondary scales of problem engagement, problem disengagement, emotion engagement and emotion disengagement, as well as tertiary scales of engagement and disengagement strategies.

The CSI has demonstrated satisfactory reliability. The alpha coefficients for the primary scales range from .71 (problem avoidance) to .94 (self-criticism) and test-retest reliabilities range from .67 (problem solving) to .83 (self-criticism) (Tobin et al., 1989). More recent research has indicated internal consistencies ranging from .70 to .91 (Cook & Heppner, 1997). Some studies have supported the validity of the CSI. A stable three level hierarchical factor structure was reported for two samples of college students. This factor structure was reported to be consistent with findings from other studies which had used different coping measures. In addition, the CSI was reported to be sensitive to variations in coping that are associated with subject characteristics and that occur with different types of stressful situations (Tobin et al., 1989). For example, in situations which could not be changed, cognitive coping strategies have been more strongly related to adjustment than problem solving strategies (Ergood, Holroyd, Frank, Pilkonis, & Anderson, 1984).

Coping Resources Inventory

The Coping Resources Inventory (CRI; Hammer & Marting, 1988) is a 60 item self-report inventory designed to measure personal resources available for coping with stress in adolescents and adults. It contains 60 statements that are rated by the respondent according to the frequency with which the statement describes them in the last six months. The CSI measures resources in five domains: cognitive resources which examines the extent to which the person maintains a positive self-

concept and optimism towards life; social resources reflects the social support available to the individual; emotional resources which examines how well they accept and express emotion; spiritual/philosophical resources reflects the extent to which the individual is guided by stable values based on religious, familial, cultural or personal philosophies; and physical resources which measures the frequency of health promoting behaviours. The response to each item is assigned a score of one to four, and the items summed for each of the five domains. The sum of these five scores represents the total resource score. Scores are then converted to standard scores with a mean of 50 and a standard deviation of 10.

Studies of the psychometric properties of the scale indicate satisfactory results (Hammer & Marting, 1988). In a heterogeneous sample of 300 subjects the scale demonstrated adequate reliability as the item-to-scale correlations indicated moderate scores. The CRI also displays adequate internal consistency for the scales with high coefficients for the total resource score in samples of adults, high and college students (Cronbach's $\alpha = .89$ to $.94$). Test-retest reliability has been examined in one sample of high school students where the CRI scales were demonstrated to be reasonably stable over a six week period ($r = .60$ to $.78$).

The CRI has demonstrated satisfactory validity. The CRI total score was a significant incremental predictor of stress symptoms and the scale scores accounted for a significant amount of the variance (46%) when entered into the equation with life events, indicating predictive validity. Convergent validity has been indicated from significant correlations of the scales of the CRI and self-ratings of these concepts in an adult sample ($r = .61$ to $.80$). Discriminant validity was demonstrated in a number of samples that were expected to possess different levels of coping resources such as healthy and ill college students when grouped by level of recent stress. The CRI demonstrated no significant influence of social desirability supporting its external validity (Hammer & Marting, 1988).

Problem Solving Inventory

The Problem Solving Inventory (PSI; Heppner & Peterson, 1982) is a 35 item instrument for measuring the respondent's perceived problem solving behaviours and attitudes. Each item is rated on a six-point scale to indicate the extent of agreement

with the statement. The scale consists of three subscales of problem solving confidence, approach-avoidance style, and personal control that are summed to produce a total inventory score. Total scores range from 32 to 198 with higher scores indicating beliefs and styles that are generally associated with successful problem solving.

The PSI has demonstrated satisfactory reliability. It has acceptable internal consistency for both the scales and the total score (alpha coefficient = .72 to .90), and test-retest reliabilities ranged from .83 to .89 for a two week interval (Heppner & Peterson, 1982). Further evidence of the PSI's stability and consistency (Cronbach's alpha = .69 to .88) has been demonstrated in studies examining American students (Ritchey, Carscaddon, & Morgan, 1984) and in a Turkish student sample (Sahin, Sahin, & Heppner, 1993).

The construct and concurrent validity of the PSI has been demonstrated. The PSI correlated significantly with a self-rating of overall ability to solve problems ($r = -.29$ to $-.46$). The PSI is able to detect differences between groups of students who have received training in problem solving and those who have not (Heppner & Peterson, 1982). Discriminant validity was reported when the PSI significantly discriminated between non/anxious and non/dysphoric groups of students (Sahin et al., 1993). In addition, the PSI has been found to be unrelated to social desirability ($r = -.09$ to $-.16$) except for the personal control scale ($r = -.24$). The PSI was demonstrated to be unrelated to intelligence (Heppner & Peterson, 1982).

Beliefs Scale

The Beliefs Scale (BS; Malouff & Schutte, 1986) is a 20 item self-report measure of irrational beliefs derived from Ellis's rational emotive theory (RET; Ellis & Harper, 1975). Respondents indicate the extent to which they agree with statements reflecting ten beliefs on a five point scale ranging strongly disagree to strongly agree. Total scores range from 20 to 100 with higher scores representing more irrational beliefs.

The BS possesses good psychometric properties. The BS was demonstrated to have high internal consistency (Cronbach's alpha = .80), and test-retest reliability

($r = .89$) for a two week period. There is adequate evidence for the validity of the BS. Construct validity was demonstrated as the BS correlated moderately with an existing measure of irrational beliefs (Irrational Beliefs Test; Jones, 1969, $r = .55$). In addition, the score on the BS decreased more for a group of depressed outpatients who received RET compared to a group who received problem solving and a wait list control. Construct validity was further demonstrated when the BS correlated significantly with clinical ratings of depression for depressed outpatients (Malouff & Schutte, 1986). In addition, high construct validity was demonstrated when the scores on the BS were found to be correlated with scores on theoretically related constructs such as hostility ($r = .42$), anxiety ($r = .53$), and irrational tendencies ($r = -.74$). However, the BS correlated more highly with other measures of irrational beliefs than with measures of negative emotions supporting discriminant validity (Malouff, Valdenegro, & Schutte, 1987). The BS displays a lower association with social desirability than that of other irrational beliefs measures although it still correlates significantly ($r = -.27$; Malouff & Schutte, 1986).

Beck Hopelessness Scale

The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) is a self-report scale designed to measure pessimistic cognitions. It is comprised of 20 true/false items assessing the negative expectancies about the immediate and long-range future. Each item is assigned either a 1 for negative expectations or a 0 for positive expectations, resulting in a score ranging from 0 to 20. The guidelines suggest that scores of 0 to 3 represent a normal or asymptomatic range, 4 to 8 as mild, 9 to 14 as moderate, and greater than 14 as severe (Beck & Steer, 1989).

The BHS has been reported to possess suitable psychometric properties (Holden, Mendonca, & Serin, 1989). It displays high internal consistency across a variety of clinical samples (alpha coefficients = .82 to .93; Beck et al., 1974), satisfactory test-retest reliability over six weeks ($r = .66$), good item total correlations as the majority were greater than .50, and reasonable content validity (Auld, 1994). It displays a significant correlation with clinical ratings of hopelessness ($r = .74$), other measures of hopelessness (Stuart Future Test, $r = .60$; pessimism item of BDI, $r = .63$), and depression demonstrating concurrent and construct validity (Beck et al.,

1974). The BHS displays predictive validity as scores of nine or above have been demonstrated to predict 90% of eventual suicides in the following ten years by patients with suicidal ideation and depression. However, the percentage of false positives was also high, with about half of those who did not kill themselves being misidentified (Beck, Steer, Kovacs, & Garrison, 1985; Keller & Wolfersdorf, 1993).

The BHS has been criticised for being strongly influenced by social desirability (Auld, 1994). Indeed, some studies demonstrated a moderate to strong negative correlations between the BHS and social desirability measures (Fogg & Gayton, 1976; Linehan & Nielson, 1981). However, other studies indicated that the BHS was still related to suicidal ideation even after social desirability had been statistically controlled (Cole, 1988; Ivanoff & Jang, 1991).

6.2.3 Procedure

This study used the same procedure as described in Chapter 4. After participants completed the questionnaires used in the research reported in Chapter 4, the questionnaires for this study were administered.

6.2.4 Data analysis

The same approach to data analysis used in chapter four was also in this study.

6.3 Results

The three groups (first time, repeat, control) were compared on their use of coping strategies by examining the scores for the Coping Strategies Inventory. The means are displayed in Figure 6.1 and the means and standard deviations are reported in Appendix D. The results indicate a significant group difference for the following strategies: problem solving [$F(2, 86) = 10.51, p < .01$], cognitive restriction [$F(2, 86) = 26.55, p < .01$], social support [$F(2, 86) = 9.91, p < .01$], problem avoidance [$F(2, 86) = 5.60, p < .01$], wishful thinking [$F(2, 86) = 19.20, p < .01$], self-criticism [$F(2, 86) = 18.77, p < .01$], and social withdrawal [$F(2, 86) = 41.48, p < .01$]. There was no significant difference between the three groups for emotional expression. Group

comparisons using the Student Newman-Keuls test (SNK) indicated that the control group scored significantly higher than the first time and repeat groups for problem solving, cognitive restructuring, and social support ($p < .01$). The control group scored significantly lower than the first time and repeat groups for problem avoidance, wishful thinking, self-criticism, and social withdrawal ($p < .01$). There were no significant differences between the first time and repeat groups for any of the coping strategies.

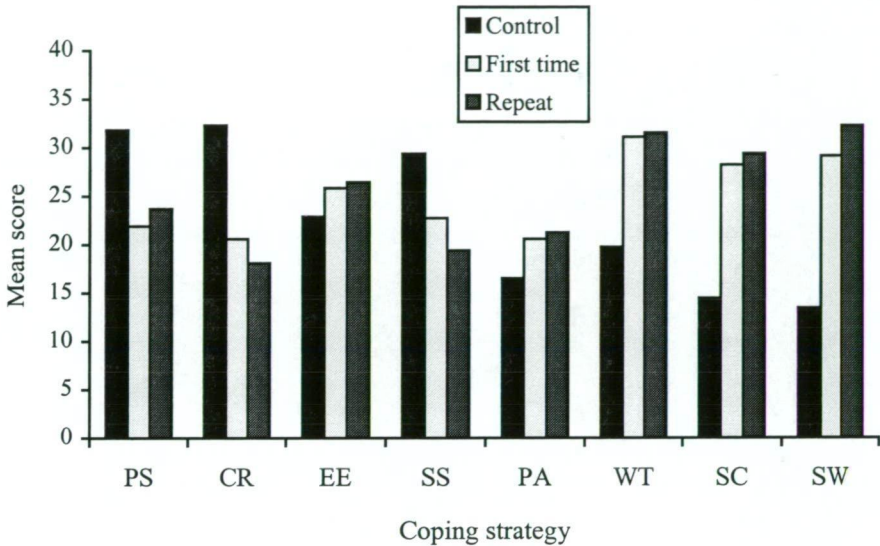


Figure 6.1

Mean use of each coping strategy for the three groups. PS = problem solving, CR = cognitive restructuring, EE = emotional expression, SS = social support, PA = problem avoidance, WT = wishful thinking, SC = self-criticism, SW = social withdrawal

Figure 6.1 indicates that the most frequently used strategies by the first time and repeat groups were social withdrawal and wishful thinking followed by self-criticism. This is in contrast to the control group who reported that their most frequently used strategies were cognitive restructuring, problem solving and social support.

The eight coping strategies were then combined into the secondary and tertiary scales and the three groups compared. The means for the secondary and

tertiary scales of the CSI for each group are displayed in Figure 6.2. The means and standard deviations for the secondary and tertiary scales of the CSI for each group are displayed in Table D2. At the secondary level, the results indicate a significant group difference for problem engagement [$F(2, 86) = 22.23, p < .01$], problem disengagement [$F(2, 86) = 19.54, p < .01$] and emotional disengagement [$F(2, 86) = 40.78, p < .01$]. There was no significant group difference for emotional engagement. Group comparisons using SNK indicate that the control group scored significantly higher than the first time and repeat groups for problem engagement ($p < .01$), and significantly lower than the first time and repeat groups for problem and emotional disengagement ($p < .01$). At the tertiary level, significant group differences were evident for both the engagement [$F(2, 86) = 40.78, p < .01$] and disengagement scales [$F(2, 86) = 40.78, p < .01$]. Group comparisons using SNK indicate that the control group scored significantly higher for the engagement scale and significantly lower on the disengagement scale compared to the first time and repeat groups ($p < .01$). There were no significant differences between the first time and repeat groups for any of the secondary or tertiary scales.

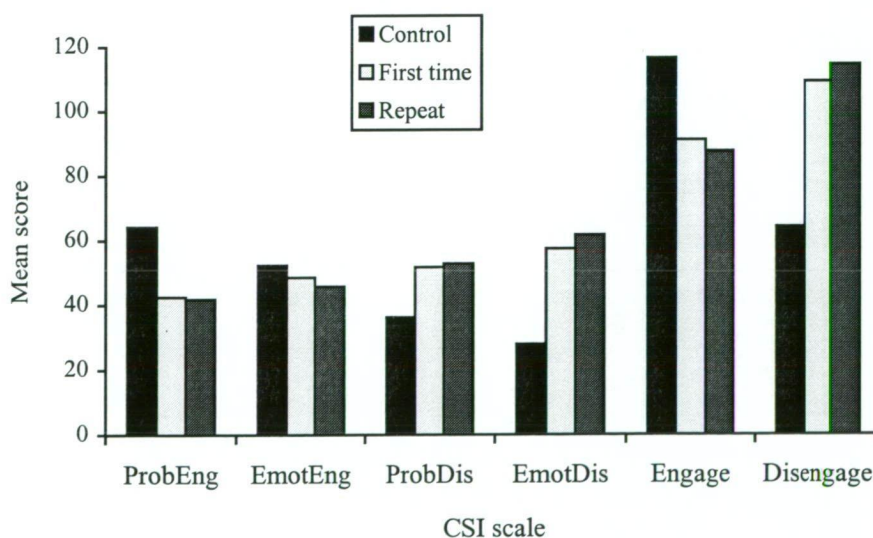


Figure 6.2

Mean for each of the secondary and tertiary scales of the CSI for the three groups. ProbEng = Problem Engagement, EmotEng = Emotional Engagement, ProbDis = Problem Disengagement, EmotDis = Emotional Disengagement, Engage = Engagement, Disengage = Disengagement

For coping resources, the three groups were compared on each scale of the Coping Resources Inventory (CRI) and the total CRI score. The means are displayed in Figure 6.3, and the means and standard deviations reported in Appendix D. Significant group differences were demonstrated for the CRI total score [$F(2, 86) = 22.87, p < .01$], the emotional scale [$F(2, 86) = 40.31, p < .01$], spiritual/philosophical scale [$F(2, 86) = 15.90, p < .01$], physical scale [$F(2, 86) = 12.83, p < .01$], cognitive scale [$F(2, 86) = 67.71, p < .01$], and the social scale [$F(2, 86) = 31.51, p < .01$]. Group comparisons using SNK indicated that the control group scored significantly higher than the first time and repeat groups for total resources and on each scale of the CRI scales ($p < .01$). There was a significant difference between the first time and repeat groups for the emotional ($p < .01$), cognitive ($p < .01$) and social scales ($p = .01$) of the CRI where the first time group scored significantly higher than the repeat group.

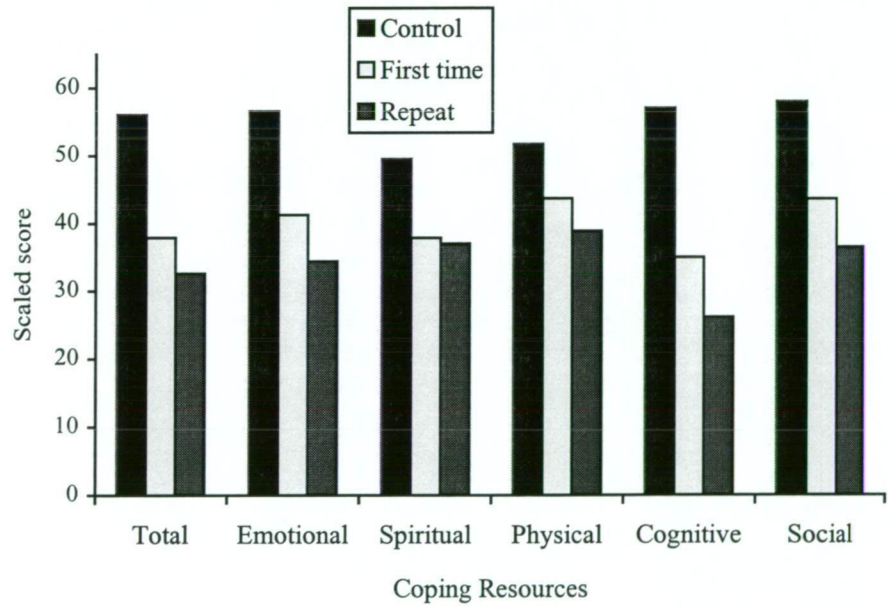


Figure 6.3
Mean for the total score on the Coping Resources Inventory and for each scale for the three groups.

For perceived problem solving, the scores for the three groups were compared and the means are displayed in figure 6.4. The means and standard deviations are reported in Table D4. Figure 6.4 indicates a significant group difference was evident for the total score on the PSI [$F(2, 86) = 52.31, p < .01$] and the three subscales [confidence: $F(2, 86) = 37.80, p < .01$; approach-avoidance: $F(2, 86) = 33.17, p < .01$; personal control: $F(2, 86) = 66.92, p < .01$]. Planned group comparisons using SNK indicated that the repeat group scored significantly lower than the first time group, which scored significantly lower than the control group for the PSI total score ($p < .01$). For each of the subscales, there was a trend for the repeat group to score lower than the first time group. The repeat group reported lower problem solving confidence ($p = .015$), a tendency to avoid problem solving activities ($p = .03$), and a low ability to control their emotions and behaviours in problem situations ($p = .018$) compared to the first time group who also reported these experiences but to a lesser extent. In contrast, the control group reported problem solving confidence, a tendency to approach problem solving activities, and feel that they can control their emotions and behaviours when dealing with problems.

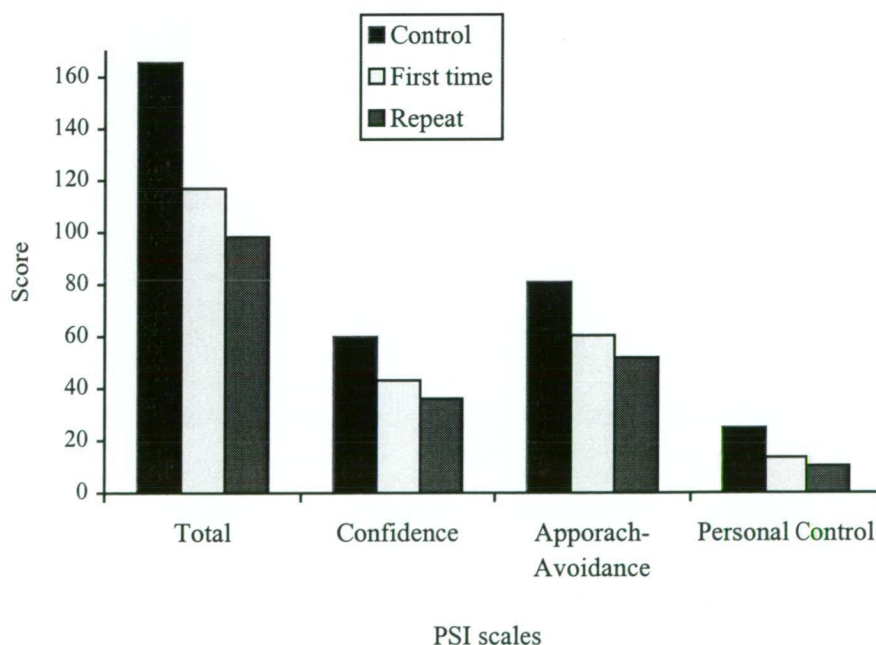


Figure 6.4

Mean scores for the Problem Solving Inventory total score and subscales.

The three groups were then compared on the Beliefs Scale (BS) total score and the ten beliefs. The means and standard deviations are displayed in Table 6.1. A significant group difference was demonstrated for the total BS score [$F(2, 86) = 26.85, p < .01$] and for Belief 1: must be thoroughly competent and achieving [$F(2, 86) = 8.30, p < .01$], Belief 2: must have love and approval [$F(2, 86) = 7.65, p < .01$], Belief 4: the past determines current feelings and behaviour [$F(2, 86) = 11.79, p < .01$], Belief 5: emotions are externally controlled [$F(2, 86) = 17.48, p < .01$], Belief 6: must be anxious when there is a risk of danger [$F(2, 86) = 5.91, p < .01$], Belief 7: life should be easier/better [$F(2, 86) = 17.08, p < .01$], Belief 8: it is awful when frustrated/treated unfairly [$F(2, 86) = 5.83, p < .01$], Belief 9: better to avoid than face responsibilities [$F(2, 86) = 11.20, p < .01$], and Belief 10: hate uncertainty [$F(2, 86) = 17.63, p < .01$]. Group comparisons using SNK indicated that the control group reported a significantly lower score for the total BS than the first time and repeat groups ($p < .01$). For each significant belief, with the exception of Belief 6, the control group reported a lower score than the first time and repeat groups ($p < .01$). For Belief 6, the control group differed significantly from the repeat group ($p < .01$) but the first time group did not differ significantly to the other two groups. There were no significant differences between the first time and repeat groups for any of the ten beliefs or total score on the BS.

Table 6.1

Means and standard deviations for the Beliefs Scale and subscales for the three groups

| Belief | Control (n=30) | Group First time (n=28) | Repeat (n=31) |
|--|--------------------|-------------------------------|------------------|
| 1. Must be thoroughly competent and achieving* | | | |
| <i>M</i> | 5.37 _a | 6.93 | 7.45 |
| <i>SD</i> | 1.75 | 2.29 | 2.14 |
| 2. Must have love and approval* | | | |
| <i>M</i> | 5.27 _a | 7.36 | 7.06 |
| <i>SD</i> | 2.00 | 2.31 | 2.35 |
| 3. When people act unfairly, they are bad or evil | | | |
| <i>M</i> | 4.30 | 5.25 | 5.71 |
| <i>SD</i> | 1.68 | 2.25 | 2.73 |
| 4. The past determines current feelings and behaviour* | | | |
| <i>M</i> | 4.60 _a | 6.68 | 7.35 |
| <i>SD</i> | 2.22 | 2.36 | 2.32 |
| 5. Emotions are externally controlled* | | | |
| <i>M</i> | 5.63 _a | 8.04 | 7.87 |
| <i>SD</i> | 1.63 | 1.37 | 2.13 |
| 6. Must be anxious when there is a risk of danger* | | | |
| <i>M</i> | 6.77 _b | 7.57 | 8.39 |
| <i>SD</i> | 1.76 | 2.10 | 1.67 |
| 7. Life should be easier/better * | | | |
| <i>M</i> | 4.67 _a | 8.25 | 7.13 |
| <i>SD</i> | 2.25 | 2.10 | 2.77 |
| 8. It is awful when seriously frustrated/treated unfairly* | | | |
| <i>M</i> | 5.87 _a | 7.07 | 7.77 |
| <i>SD</i> | 2.21 | 2.34 | 2.06 |
| 9. Better to avoid than face responsibilities* | | | |
| <i>M</i> | 3.37 _a | 5.07 | 5.77 |
| <i>SD</i> | 1.56 | 1.82 | 2.55 |
| 10. Hate uncertainty* | | | |
| <i>M</i> | 5.59 _a | 7.46 | 8.39 |
| <i>SD</i> | 1.94 | 1.90 | 1.78 |
| Total* | | | |
| <i>M</i> | 51.37 _a | 69.96 | 72.48 |
| <i>SD</i> | 10.48 | 13.21 | 12.78 |

$p < .01$

a = control group scored significantly lower than the first time and repeat groups

b = control group scored significantly lower than the repeat group

The final analysis was a comparison of the three groups for the BHS scores. The results are displayed in Table 6.2. The results indicate a significant group difference for hopelessness [$F(2, 86) = 143.91, p < .01$]. Planned comparisons using SNK indicated that the repeat group reported significantly higher levels of hopelessness compared to the first time group, which reported significantly higher levels of hopelessness compared to the control group ($p = .01$). The repeat group scored in the severe range of the BHS, with the first time group scoring in the moderate range, and the control group in the normal range.

Table 6.2
Means and standard deviations for the Beck Hopelessness Scale for the three groups

| Scale | Group | | |
|---------------|----------------------------|-------------------------------|---------------------------|
| | Control (<i>n</i> =30) | First time (<i>n</i> =28) | Repeat (<i>n</i> =31) |
| Hopelessness* | | | |
| <i>M</i> | 1.40 | 13.89 _a | 16.32 _b |
| <i>SD</i> | 1.30 | 4.57 | 4.24 |

* $p = .01$
a = first time group scored significantly higher than the control group
b = repeat group scored significantly higher than the first time group

6.4 Discussion

The aim of this study was to compare first time and repeat intentional self-poisoning groups and a control group on cognitive-behavioural measures to identify differential characteristics associated with repetition. The results did not demonstrate the expected difference between first time and repeat groups for the use of maladaptive coping strategies. The results indicated that both the repeat and first time groups reported using significantly more disengagement coping strategies than the control group, with no significant difference between the two intentional self-

poisoning groups. In addition, the first time and repeat groups reported the use of significantly less engagement strategies than the control group, with no significant difference between the two intentional self-poisoning groups. This suggests that there is not a deterioration of the use of adaptive strategies into maladaptive strategies with subsequent attempts. Rather, it appears that the use of disengagement strategies may be a vulnerability for suicide attempts with other factors impacting on repetition.

The results indicated that both the first time and repeat intentional self-poisoning groups most frequently used strategies were social withdrawal, wishful thinking, and self-criticism. The use of such disengagement strategies was expected as previous research with adolescent and young adult suicide attempt samples have indicated the use of maladaptive or avoidant strategies (Sandin, Chorot, Santed, Valiente, & Joiner, 1998; Wilson et al., 1995). In addition to the high use of disengagement strategies, both the first time and repeat groups reported a low utilisation of the adaptive engagement strategies. The low use of problem solving as a coping strategy is not unexpected given both the first time and repeat groups' low appraisal of their problem solving skills. Social support was also utilised equally little by both groups. However, the results also indicated that the repeat group reported significantly less social resources than the first time group. Consequently, it would be expected that the repeat group would use social support to a lesser extent than the first time group due to the more serious lack of social resources. As there was no significant difference between the first time and repeat groups for the utilisation of social support in a response to a stressful situation, other factors must impact on the use of social support for both groups. It may be that both groups do not know how to utilise social support even when it is available. Cognitive factors such as irrational beliefs or low self-esteem may prevent the utilisation of the support (Curbow & Sommerfield, 1991; Hart & Hittner, 1991). In addition, the significant symptomatology including depression, anxiety, and phobic anxiety, experienced by both intentional self-poisoning groups may also affect their ability to utilise social support.

The adaptive strategy of cognitive restructuring was the strategy that was least likely to be utilised by both the first time and repeat intentional self-poisoning

groups when coping with stress. This is not unexpected given the literature concerning cognitive rigidity. Those who attempt suicide have been demonstrated to display rigid and dichotomous thinking which would prevent them from taking alternative perspectives when experiencing stress (Neuringer, 1964). This cognitive style would impair an individual's ability to see alternatives or look at a situation from a variety of perspectives.

The results for coping strategies also indicated no differences between the three groups for the strategy of emotional expression. All three groups reported moderate use of emotional expression to cope with stress. However, as both the first time and repeat groups were below average in their emotional coping resources, it suggests that the intentional self-poisoning groups may be less able to accept their emotions or express them in an adaptive way. For example, during the interview sessions some intentional self-poisoning participants appeared to conceptualised self-destructive behaviour, such as aggressive behaviours, overdosing, or self-mutilation, as emotional expression. More detailed examination of this strategy may indicate differences in the adaptiveness of the expression between the groups.

Although there were no significant differences between the first time and repeat groups for the type of coping strategies used when under stress, there were significant differences between the groups for their coping resources. The repeat group reported significantly poorer emotional, cognitive and social resources than the first time group. More severe impairments in coping resources were expected as it has been suggested that poor coping resources is one factor that contributes to repetition of suicidal behaviour by keeping it high in the repertoire of problem solving behaviour (Joiner & Rudd, 2000; Linehan, 1987). The results of this study appear to be the first to empirically establish the presence of and the specific type of impairments between first time and repeat groups of suicide attempt patients. Although both groups reported below average resources in all areas, it appears that extremely impaired emotional, cognitive and social resources may be important factors in repetition. However, it is not clear whether lacking these resources results in a person being vulnerable to further attempts or whether the resources deteriorate further with subsequent attempts. Both options appear plausible, and it may be that both occur. For example, an individual who has few cognitive resources is

vulnerable to suicidal behaviour, and as a consequence of such behaviour, low self-worth may be reinforced, which further reduces their cognitive resources. Future research needs to examine these groups longitudinally to examine whether severely impaired resources are present initially and whether resources continue to deteriorate with subsequent attempts.

It was also hypothesised that the repeat group would report poorer perceived problem solving compared to the first time group which was expected to score more poorly than the control group. The results supported this hypothesis and this study extends the previous research from a military inpatient sample of young adults to a clinical sample of adults (Rudd et al., 1996). Rudd et al. (1996) reported that those who had made previous attempts reported less problem solving confidence and less control over their emotions and behaviours when dealing with problems. In addition, those with clear intent to die reported a greater use of avoidance to deal with problems. This is consistent with the results of this study which demonstrated that this clinical sample of adults reported poorer perceived problem solving, a trend for low confidence in their problem solving skills, a tendency to avoid problem solving behaviour, and feeling out of control when solving problems. This result is also consistent with a study examining a group of first attempt patients over three months. Those who repeated in the three months indicated that they perceived themselves as less effective problem solvers than those who did not repeat (Scott, House, Yates, & Harrington, 1999).

The results indicated that the repeat group reported experiencing severe hopelessness prior to the overdose which was significantly greater than the first time group which had a mean in the moderate range. This was expected and is consistent with previous research examining repetition in prospective studies (Brittlebank, Cole, Hassanyeh, Kenny, & Scott, 1990; Sidley, Calam, Wells, Huges, & Whitaker, 1999). This result extends previous research using a retrospective definition of repetition which compares first time and repeat groups. Previous research has indicated significantly greater hopelessness in a psychiatric sample of young adult military personnel reporting clear suicidal intent (Rudd, Joiner, & Rajab, 1996). The present clinical sample of adults reported a greater level of hopelessness irrespective of suicide intent.

The reason for the higher level of hopelessness for the repeat group cannot be determined from this study. As discussed in Chapter 5, a process-based explanation would suggest that there is increasing hopelessness with subsequent attempts because of the various reinforcements associated with the attempt and its consequences. It may be that the repeated occurrence of similar problems or the recurrence of periods of intense distress affects the individual's expectancy of future positive and negative events. This may result in increased hopelessness over time with subsequent suicidal episodes. However, the cognitive-behavioural model of suicidality proposes a trait explanation for the repeat group. This model suggested that those who make repeat attempts would have greater hopelessness due to the addition of the hopelessness associated with the suicidal mode with the individual's chronic hopelessness related to personality disturbance (Rudd et al., 2001). As there was a failure to find a significant difference between the two groups for Axis II diagnosis, this suggests that the amount of personality disturbance in the two intentional self-poisoning groups was similar. However, this does not exclude the possibility that there may have been more undiagnosed disturbance in the repeat group, or disturbance at a subthreshold level for diagnosis. The results of more severe cognitive coping resource impairments for the repeat group may suggest a trait component to the repeat group's hopelessness. Cognitive coping resources measure an individual's sense of self-worth and positive outlook on life in the six months prior to the overdose. As the resources were more severely impaired for the repeat group, it suggests that they may have had a more pessimistic view of the future in the previous six months compared to the first time group. Further research is required to establish the mechanism for greater hopelessness for the repeat group.

The finding of more severe hopelessness and perceived problem solving impairments amongst the repeat group is consistent with the problem solving model. The expanded diathesis-stress-hopelessness model proposes that perceived problem solving impairments may interact with life stress to result in hopelessness and suicidal ideation (Dixon, Heppner, & Anderson, 1991). The results indicated that a more severe perceived problem solving impairment was associated with more severe hopelessness as demonstrated by the repeat group. This suggests that the appraisal of problem solving skills as poor may be a vulnerability for repetition present for some

individuals at the first attempt. Alternatively using a process-based explanation, an individual's appraisal of their own problem solving skills may deteriorate after an attempt. This may result in greater hopelessness and an increased likelihood of repetition.

Finally, maladaptive cognitions were examined using an irrational beliefs measure. The results indicated that the intentional self-poisoning groups reported significantly greater levels of irrational beliefs than the control group. However, there were no significant differences between the repeat and first time groups. As psychological distress is associated with irrational beliefs, higher levels of irrational beliefs were expected due to the significantly higher levels of distress from symptoms demonstrated for the repeat group in Chapter 4. In addition, the cognitive-behavioural model suggested that there may be sensitization of cognitive triggers for the repeat group which may include irrational beliefs, and previous research has indicated that the strength of irrational beliefs may change over time with clinical symptoms (Persons & Rao, 1984). As there was no significant difference between the first time and repeat groups in the level or type of irrational beliefs, it appears that irrational beliefs may not be critical factors for repetition. It may be that other maladaptive cognitive characteristics not measured in this study such as attributions or the interaction of irrational beliefs with other variables such as Axis I or II disorders may be associated with repetition.

The presence of irrational beliefs amongst those attempting suicide is consistent with previous research (Bonner & Rich, 1990; Woods, Silverman, Gentilini, Cunningham, & Grieger, 1991; Woods, 1992). Ellis and Ratliff (1986) demonstrated that suicidal psychiatric inpatients reported greater irrational beliefs than a group of non-suicidal psychiatric inpatients. They reported that the irrational belief that emotions are externally controlled discriminated the suicidal from the non-suicidal psychiatric groups. The authors argued that these beliefs contribute to hopelessness and suicidality. However, it is not clear from this research which beliefs are associated with suicidality in a general clinical population and which are associated with psychiatric illness. Future research could include a psychiatric control group when examining irrational beliefs associated with suicidality and its subgroups.

6.4.1 Clinical implications

The results of this study indicate that impaired cognitive, emotional and social resources, perceived problem solving impairments, and the severity of hopelessness distinguish the repeat group from the first time group. Consequently, these may be important targets for intervention. In particular, these results indicate the importance of cognitive-based therapies for the repeat group. The repeat group reported hopelessness in the severe range and extremely low cognitive resources. In addition, they reported very limited use of the coping strategy of cognitive restructuring and high levels of self-criticism. Cognitive therapy could focus on improving cognitive resources such as building a more positive outlook on life and a sense of self-worth, as well as reducing self-criticism, and teaching cognitive reframing and restructuring.

Although not specific to the repeat group, cognitive therapy is also indicated for the high levels of irrational beliefs. Both the first time and repeat groups reported a high level and a variety of irrational beliefs. Cognitive-based therapy has been demonstrated to be effective in reducing distress (Reilly, 1998; Rudd, 2000b). Using cognitive therapy with individuals who have attempted suicide may contribute to the reduction of distress and symptomatology.

The results of this study also reinforce the appropriateness of problem solving based therapies for both first time and repeat groups. The results suggest that those who repeat may be particularly impaired in problem solving confidence, controlling their emotions and behaviour when dealing with problems, and may tend to avoid problem solving. The first time group also reported these impairments but to a lesser degree compared to the repeat group. Increasing problem solving skills appears to be very important, particularly for the repeat group. Addressing this issue may contribute to the reduction of hopelessness, and consequently, the risk of further suicide attempts. In addition, teaching and reinforcing problem solving efforts may reduce the use of disengagement strategies when coping with stress.

The significantly impaired emotional and social resources reported by the repeat group may also be appropriate targets for therapy. It suggests that those who make repeat suicide attempts need to learn how to accept and appropriately express a range of emotional states. Cognitive-behavioural therapies that address the acceptance and expression of emotions may be more beneficial for the repeat group than therapies without an emotional component. The results of this study suggest that it may be important to increase social resources, particularly for those who repeat. However, it has been suggested that those who attempt suicide may have qualitative differences in the way they confide (O'Connor, Sheehy, & O'Connor, 2000). This may be an area requiring further research to determine the quality of social interaction in which the repeat group engage, and how to improve the use of social support.

A further implication of the results of this study is in the development of coping strategies with those who have attempted suicide. As there were no significant differences between the first time and repeat groups for any of the coping strategies, this suggests that therapy addressing the development of coping strategies does not need to be adjusted for repetition status. The results suggest that for a clinical sample of adults, the development of adaptive coping strategies is important for both the first time and repeat groups.

These implications suggest that cognitive-behavioural therapies may be important for reducing repetition. However, it has been concluded that brief cognitive-behavioural therapies for individuals who have attempted suicide report only positive results for reducing ideation, hopelessness, and depression and not for reducing repetition of suicide attempts (Rudd, 2000b). The results of this study suggest that longer term therapy may be required to reduce repetition rates. It may be that therapies which address the more enduring impairments specific to the repeat group such as impaired cognitive resources may be more successful at reducing repetition. Indeed, longer term therapies incorporating cognitive-behavioural concepts such as problem solving in addition to other skills training have indicated promising results in reducing repetition (Linehan, Armstrong, Suarez, Allman, & Heard, 1991), and longer-term therapy has been recommended to reduce repetition (Rudd, 2000b).

6.4.2 Limitations

As the sample used in this study was the same as those who participated in the research reported in Chapter 4, the same limitations apply. These include the use of a selected sample, procedural limitations, and the use of a self-report retrospective design. Again, not all of the questionnaires used in this study appear to have been validated for verbal administration. Consequently, the conclusions drawn from this study may be considered provisional and limited to a clinical adult samples without a psychotic illness.

As in chapter 4, the time between the overdose and the interview was correlated with the measures to determine any influence of the time delay on the results. The only significant correlation was a weak positive correlation between the interview time delay and the physical, cognitive and emotional scales of the CRI. This suggests that the interpretation of the CRI scales may be influenced by the time period between the overdose and the interview. As there was no significant difference between the interview time delay for the two intentional self-poisoning groups, this does not affect the interpretation of the group results. However, the correlation suggests that physical, cognitive and emotional resources may be improved over time after a suicide attempt. This may occur for several reason such as the effect of any interventions in the time period between the overdose and the interview, or it may reflect recovery over time.

As this research did not include a psychiatric control group, it is not clear from this research whether the impairments of the intentional self-poisoning group are associated with suicidality or psychiatric illness. Previous research has indicated that greater hopelessness, maladaptive coping strategies, problem solving impairments, and irrational beliefs are more severe for suicidal ideation and attempt groups than non-suicidal psychiatric patients (D’Zurilla, Chang, Nottingham, & Faccini, 1998; Ellis & Ratliff, 1986; Mann, Waternaux, Haas, & Malone, 1999; Wilson et al., 1995). However, future research into these factors, and particularly when examining coping resources, could benefit from the inclusion of a psychiatric control group.

The conclusions about coping and repetition are specific to the type of measure used. The CSI is an episodic coping measure, reflecting the stress prior to the overdose. This is consistent with the process view of stress developed by Folkman and Lazarus (1985). They indicated that it was important to measure what a person actually thinks or does in a situation rather than general traits. However, these episodic measures may reflect an unusual or isolated situation and may not be indicative of the individual's general style. Indeed, only moderate correlations have been reported between episodic and dispositional measures of coping (Steed, 1998). Consequently, the strategies used for a stressful situation in the month before the overdose may not be representative of the typical coping style. Further research could examine coping in more detail, including dispositional and episodic measures to contrast the use of strategies.

Finally, the cross-sectional design of this study limits the understanding of the processes involving these cognitive-behavioural factors and suicidality. The cross-sectional design means that it is not clear whether the impairments found in the repeat group are existing vulnerabilities or represent a deterioration of these factors over time. Future research in this area would benefit from using a longitudinal design where the intentional self-poisoning patients are assessed both at the time of the first and at each subsequent attempt. This would allow the nature of the impairments in the suicidal process to be examined.

6.4.3 Conclusion

This research has provided a cognitive-behavioural profile for both the first time and repeat suicide attempt groups. The results indicate that the repeat group experienced significantly more severe hopelessness prior to the overdose than the first time group, and that the repeat group reported significantly poorer perceived problem solving skills. Both the first time and repeat groups reported using more disengagement coping strategies including social withdrawal, wishful thinking and self-criticism. Even though no significant differences between the first time and repeat groups were reported in coping strategies when under stress, the repeat group appears to be less equipped to cope with stress due to severely impaired cognitive,

emotional and social resources compared to the first time group. As no significant differences between the first time and repeat groups were evident for coping strategies and irrational beliefs, these factors do not appear to be specifically related to repetition, and may be of lesser importance in reducing the risk of repetition.

Consequently, it appears that the differences between the first time and repeat groups are quantitative rather than qualitative for these cognitive-behavioural variables. This does not exclude the possibility that characteristics not measured in this study or interactions of characteristics qualitatively differentiate the two groups. The results of this study do not indicate whether hopelessness, perceived problem solving, and cognitive, emotional and social resources deteriorate with subsequent attempts, or severe impairments at the first attempt represent a vulnerability for further attempts, or if both of these processes occur. The use of a cross-sectional self-report design has limitations in elucidating these processes and the processes underlying repetitive intentional self-poisoning behaviour. One approach to understanding the processes of events in a cross-sectional design is to examine the behaviour over a short time period. Suicidal behaviour can be examined in this way by measuring psychophysiological change during the implementation of the behaviour using a guided imagery methodology. This will be discussed in the next chapter.

Chapter 7

Psychophysiology and repeat suicide attempts

7.1 Introduction

Psychophysiology is an important component of behaviour and is defined as the “science which studies the physiology of the psychic functions through the brain-body-behaviour interrelationships of the living organism in conjunction with the environment” (p. 22, Mangina, 1983). The psychophysiological component of clinical behaviours has often remained uninvestigated due to ethical and practical problems associated with its assessment. However, the development of guided imagery methodologies and psychophysiological recording technology has meant that the psychophysiology of clinical behaviours can now be examined.

There are several advantages to examining the psychophysiology of clinical behaviours. Firstly, psychophysiology can overcome some of the limitations associated with the use of self-report data. Self-report data have the well-recognised limitations of response and recall biases (Barclay & Smith, 1992). For some clinical behaviours and emotional responses, participants may be unable or unwilling to provide valid self-reports of their experience (Smith, 1989). Consequently, the assessment of psychophysiology can provide a more objective measure of behaviour and may provide convergent validity to self-report based findings (Williamson, Gorzeczny, & Duchmann, 1987).

More importantly, the examination of psychophysiology may provide greater insight into the processes underlying behaviour and emotion. Examining psychophysiology using guided imagery provides a cross-sectional method of assessing the phenomenology of the behaviour. As a consequence, insight may be gained into the function and mechanisms of the behaviour. For example, the examination of the psychophysiology of self-mutilative behaviour indicated support for the role of a tension reduction mechanism in the maintenance of repetitive self-mutilation (Brain, Haines, & Williams, 1998; Haines, Williams, Brain, & Wilson, 1995). Such an examination of the psychophysiology of intentional self-poisoning may provide insight into the reinforcement processes associated with repetition. A greater understanding of the reinforcement processes associated with the psychophysiological response may have implications for the timing and types of treatments appropriate for those making repeat attempts.

Consequently, the aim of this chapter is to review the literature concerning psychophysiology and repetition of suicidal behaviour. This review will focus on the development of psychophysiological assessment from research into the identification of physiological markers to the development of the four-stage guided imagery methodology of psychophysiological assessment.

7.2 Psychophysiology and suicidal behaviour

The major area of psychophysiological research into suicidal behaviour has been the identification of physiological markers associated with those who have attempted and those who eventually complete suicide. The two main fields of research involved the examination of electrodermal and EEG responses associated with suicidality. These studies have identified physiological risk factors for suicide (Graae et al., 1996; Wolfersdorf, Straub, Barg, Keller, & Kaschka, 1999).

In the area of electrodermal research, rapid habituation has been identified as a physiological risk factor for suicide (Keller, Wolfersdorf, Straub, & Hole, 1991). Research examining electrodermal responses has indicated that patients hospitalised after a recent suicide attempt demonstrated hyposensitivity to repeated neutral auditory stimuli (Thorrell, 1987; Wolfersdorf, Straub, & Barg, 1996). This abnormality was not evident for patients diagnosed with either major depression or a personality disorder (Wolfersdorf et al., 1999; Wolfersdorf et al., 1996). In all previous studies, patients who subsequently died by violent methods of suicide demonstrated a marked nonreactivity and rapid habituation to auditory stimuli. However, the rapid habituation was not demonstrated for inpatients who reported only thoughts of suicide (Wolfersdorf et al., 1999).

In addition to this risk factor, psychophysiological research has also suggested that there may be EEG markers of suicidal behaviour (Struve, 1986). These studies have indicated EEG differences between both adult and adolescent patients admitted to hospital for a suicide attempt and groups of non-psychiatric controls (Ashton, Marshall, Hassanyeh, Marsh, & Wright-Honari, 1994; Graae et al.,

1996). These abnormalities were reported to be related to suicidal intent and not to self-report measures of depression. It was suggested that the EEG patterns demonstrated by individuals who have attempted suicide may be a vulnerability marker for suicide, possibly reflecting serotonin abnormalities in the brain (Graae et al., 1996).

These areas of psychophysiological research have typically not differentiated between first time and repeat attempt groups. Only one study was identified that had differentiated first time and repeat groups. This study demonstrated differential EEG responses between the patients admitted to hospital after a first or repeat suicide attempt. The results indicated that the repeat group displayed the EEG abnormality of significantly smaller contingent negative variation in two different samples (Ashton et al., 1994). This research suggests that individuals who repeatedly engage in suicidal behaviours may be psychophysiologicaly differentiated from those who have engaged in only a single episode.

Although this research suggests that individuals who make repeat attempts may display psychophysiological abnormalities, this style of psychophysiological research does not contribute to the understanding of the processes underlying the behaviour. However, the contribution of psychophysiological research to repetitive suicidal behaviours could be expanded when combined with imagery.

7.3 Guided imagery and psychophysiology

Guided imagery has been reported to be a useful tool for eliciting psychophysiological responses analogous to those experienced *in situ* (Lang, 1979). The use of guided imagery to elicit psychophysiological responses has resulted in advancements in the measurement of the phenomenology and processes underlying behaviours of clinical interest (Williams, Wilson, Montgomery, & Batik, 1989).

The use of guided imagery to measure psychophysiology developed from Lang's (1979) bio-informational theory of emotional imagery. The theory proposed that imagery consists of a set of memory propositions that are organised into

networks. The propositions include physiological and behavioural responses, situational cues, and semantic information associated with an emotional state. To elicit an emotional state, a critical number of propositions must be accessed. Lang proposed that the propositional network could be accessed via imagery using text describing the emotional situation. This text, in the form of a verbal script, can access a response program and result in measurable changes in somatic and autonomic systems. Lang proposed that this could occur if the script of an event matched the relevant concepts in memory, and if the participant is instructed to imagine active participation in the event.

Lang (1979) used written scripts as the text for evaluating the theory. A neutral, action, and fear script were used to determine whether imagery, script content, and imagery training could result in measurable psychophysiological changes. The studies demonstrated that imagery could generate appropriate psychophysiological response patterns in accordance with the emotional response to the content of the script. The participant's true emotional response was determined by exposure to the actual stimuli, as well as an independent assessment of emotion using questionnaires. The research also demonstrated that larger psychophysiological responses could be observed if the scripts contained response information such as behavioural and physiological reactions to the event, and if participants were trained in focusing on that response information. The psychophysiological changes observed using this methodology were demonstrated to result from the imagery content and not from the autonomic demands of imaging (Vrana, Cuthbert, & Lang, 1989).

Further research refined the script requirements for eliciting appropriate psychophysiological responses. This research indicated that imagery was best utilised to measure psychophysiology if personalised imagery scripts were used rather than standardised scripts. Personalised scripts describe an actual experience of each individual experiencing the target behaviour (Blanchard, Hickling, Taylor, Loos, & Gerardi, 1994; Orr, Pitman, Lasko, & Herz, 1993). In addition, response imagery training of participants was demonstrated not to be necessary given the use of personalised information in the script. As participants already have the

information in memory, the memory only requires cuing with the script making response training unnecessary (Vrana et al., 1989).

7.4 Guided imagery and clinical behaviours

The use of personalised guided imagery to measure psychophysiology has facilitated the understanding of clinical disorders. Psychophysiological responses elicited using personalised guided imagery have been used to discriminate war veterans diagnosed with post-traumatic stress disorder from those diagnosed with other anxiety disorders and mentally healthy controls (Pitman et al., 1990; Pitman, Orr, Forgue, de Jong, & Claiborn, 1987). In these studies, participants imaged personalised scripts relating to their own combat experiences and several control scripts. Using each participant's averaged psychophysiological response to each script, the research indicated that the participants diagnosed with PTSD demonstrated increased psychophysiological responsiveness to imagery of past traumatic combat events compared to those who were diagnosed with other anxiety disorders or those veterans without a mental illness. These findings suggested that measuring psychophysiology in this way may aid the assessment and diagnosis of PTSD from other anxiety disorders.

However, the use of the methodology in this way limited the information gained about the dynamic process of the behaviour being measured. Obtaining an average psychophysiological response to each script results in the loss of potentially useful information in understanding the reinforcement process of the behaviour. Self-report studies suggest that for some people attempting suicide, there may be peaks of arousal as well as feelings of relief during the execution of the behaviour (Goldston et al., 1996). If the average response to the whole script is considered then this information cannot be elicited.

This limitation has been overcome with the development of a four-stage guided imagery procedure. This procedure was developed to examine the arousal patterns of clinical behaviours as they develop over time, which allows the phenomenology and underlying processes of behaviour to be examined. The

methodology involves the verbal administration of four-stage personalised guided imagery scripts. The behaviour is divided into the four separate stages of scene setting (the physical environment and circumstances existing before the incident), approach (the events leading up to the incident and the participants reactions), incident (the actual event and the participants reactions to it) and consequence (the events immediately after the incident and the participants reactions to those events). When the script is verbally administered the psychophysiology for each stage is recorded and data about the individuals' psychophysiological responses at each stage of the behaviour are elicited. The changes over the stages can provide insight into the processes underlying the script content (Haines et al., 1995; Williams et al., 1989).

This four-stage methodology has been demonstrated to differentiate patterns of arousal associated with clinical behaviours such as self-mutilation and bulimia from that of control behaviours (Brain et al., 1998; Haines et al., 1995; Williams, Haines, Casey, & Brain, submitted). In addition, it has been demonstrated that past events can be clearly imaged and appropriate psychophysiological responses elicited (Brain, Williams, Haines, Stops, & Driscoll, 1996). A further advantage of this methodology is that the individual is not required to engage in the behaviour at the time of measurement, overcoming the significant practical and ethical problems associated with examining the psychophysiology of self-destructive behaviours.

7.5 Conclusion

The four-stage guided imagery methodology has enabled psychophysiological research to provide new developments in the understanding of the phenomenology of self-destructive behaviour, and added support to existing self-report findings. The application of this cross-sectional research methodology to attempted suicide may be important in understanding the processes maintaining repetitive intentional self-poisoning. It may be that examination of the psychophysiology of the suicide attempt for first time and repeat groups indicates differences in the experience of the behaviour. Any differences will add to the knowledge-base about the reinforcement patterns underlying the behaviour.

Chapter 8

The psychophysiology of repeat intentional self-poisoning

8.1 Introduction

The literature has indicated that measuring psychophysiology using a four stage guided imagery methodology may add validity to self-report data and be useful in clarifying the processes underlying intentional self-poisoning behaviour. Further clarification of the processes underlying repeated self-poisoning will aid in the development of treatments for this often difficult to manage behaviour (Ojehagen, Danielsson, & Traskman-Bendz, 1992).

Although learning theories have suggested that reinforcement may maintain repetitive self-poisoning behaviour, the mechanisms have not been established. One mechanism that has been proposed by early behaviour theorists and implicated by the self-poisoning research is tension reduction (Frederick & Resnick, 1971; Maris, 1981). As outlined in Chapter 2, behaviour theorists proposed that a major source of reinforcement from suicide attempts was the resulting reduction of tension from engaging in the behaviour. The relief of tension was proposed to reinforce the behaviour, increasing its likelihood of recurring.

The tension reduction model has primarily been expanded from behaviour theory by researchers examining repetitive self-mutilation. The model of tension reduction associated with self-mutilation proposes that this behaviour serves to regulate emotions, acting as a temporary coping mechanism (Suyemoto, 1998). The process involves the escalation of negative emotions where tension becomes the predominant affect. As the tension becomes unbearable, there is an impelling impulse to self-mutilate and often the individual enters a depersonalised state. When the individual self-mutilates there is a reduction in tension, repersonalisation, and a sense of relief and calm (Suyemoto, 1998; Wanstall & Oei, 1989). This relief from tension reinforces the behaviour increasing the likelihood of repetition (Brain, Haines, & Williams, 1998). This model of self-mutilation has been supported by both self-report (Favazza & Conterio, 1989; Pattison & Kahan, 1983) and objective studies (Brain et al., 1998; Haines, Williams, Brain, & Wilson, 1995).

As discussed in chapter 2, self-report studies have suggested the involvement of tension reduction in intentional self-poisoning. For example, tension is a

frequently reported symptom and motivation for a self-poisoning incident (Newson-Smith & Hirsch, 1979; O'Connor, Sheehy, & O'Connor, 2000; Williams, Davidson, & Montgomery, 1980). Indeed in both adolescent and adult samples, it has been suggested that suicide attempts may represent a mechanism to reduce intolerable emotional states (Goldston et al., 1996; O'Connor et al., 2000; Zlotnick, Donaldson, Spirito, & Perlstein, 1997). It has been speculated that the decrease in negative emotions from the suicidal behaviour or even planning the suicidal behaviour among individuals at either their first or repeat attempt would be self-reinforcing and result in an increased likelihood that these individuals would repeat the act (Goldston et al., 1996).

Tension reduction has also been specifically associated with repetition (Batchelor, 1954; Goldston et al., 1996). As discussed in Chapter 2, repetitive self-poisoning has been described as a maladaptive coping strategy for distress (Lieberman & Eckman, 1981) where the individual uses self-harm to eliminate the tension associated with the uncomfortable emotional state (Crowe & Bunclark, 2000; Kiev, 1989). Indeed, repetitive self-poisoning is often utilised by individuals diagnosed with borderline personality disorder as a dysfunctional escape behaviour from intensely painful negative affect (Shearin & Linehan, 1994). Therapies for repeated suicidal behaviour often involve teaching patients coping skills other than suicidal behaviours to regulate or tolerate painful affect (Shearin & Linehan, 1992).

The tension reduction theory can be objectively tested using the four stage guided imagery methodology to examine psychophysiology. This methodology has been used to examine the tension reduction theory in relation to self-mutilative behaviour. In samples of incarcerated and community self-mutilating individuals, a tension reduction pattern of psychophysiological arousal to a four stage personalised imagery script of a self-mutilative episode has been demonstrated. This pattern was demonstrated regardless of whether or not the participants had recently engaged in the behaviour (Brain et al., 1998; Haines et al., 1995). The authors also assessed the participants' subjective response to the self-mutilation imagery. The results indicated a reduction in tension when imaging the act of self-mutilation if the participant had recently engaged in the behaviour. However, for those participants who had not recently engaged in self-mutilation, the psychological reduction in

arousal was not reported until immediately after the act. The authors suggested that this lag in psychological relief for the retrospective sample reflected a cognitive reinterpretation of the feelings associated with the act when the behaviour is no longer in use (Brain et al., 1998).

The aim of this study was to examine individuals who have engaged in repeat and single intentional self-poisoning incidents. To date, no other research examining the psychophysiology of intentional self-poisoning using the four stage methodology have been identified. Consequently, the hypotheses were based on behavioural and cognitive-behavioural theory, and the self-poisoning literature. It was hypothesised that the first time intentional self-poisoning group would display a tension reduction pattern of psychophysiological arousal in response to the self-poisoning imagery. The pattern of psychophysiological response to the self-poisoning imagery for the repeat self-poisoning group was also expected to reflect a tension reduction pattern. However, the cognitive-behavioural model of suicidality suggests that those who make repeat attempts experience more intense suicidal crises characterised by intense negative affect and severe symptoms (Joiner, Rudd, Rouleau, & Wagner, 2000). Consequently, it may be that the psychophysiological responses of individuals making a repeat attempt may be more intense prior to the attempt (approach). In addition, it was speculated that a greater reduction in psychophysiological arousal during the incident may be experienced by the repeat group due to the multiple episodes of reinforcement from previous self-poisoning incidents. The self-poisoning participants were also compared to a control group for two control imagery scripts, prescribed medication ingestion and neutral scripts. It was expected that there would be no differences between the self-poisoning and control groups to the control imagery. The subjective response to imagery was also examined for both groups of self-poisoning participants and control participants.

8.2 Method

8.2.1 Participants

The self-poisoning participants were 34 individuals (41% male, 59% female) who had intentionally taken an overdose of medication. They were recruited from the community via community mental health facilities and university noticeboards in Hobart. They were matched on the basis of sex, age and imagery ability to 34 control participants who had never attempted suicide or intentionally self-harmed. The control participants were recruited from a pool of first year psychology students who had completed the imagery ability questionnaire. The mean age of the self-poisoning participants was 30.35 years ($SD = 10.39$) and that of the control group was 30.53 years ($SD = 10.87$). Mean imagery ability for the self-poisoning group was 83.97 ($SD = 26.63$) compared to 83.29 ($SD = 22.50$) for the control group. The mean for participants ability to manipulate images was 16.60 ($SD = 5.18$) for the self-poisoning participants and 15.35 ($SD = 3.98$) for the control participants. No significant differences were evident on these variables [$F(1, 66) = 0.01, p > .05$; $F(1, 66) = 0.01, p > .05$; $F(1, 61) = 1.34, p > .05$, respectively].

The intentional self-poisoning group was divided into first time ($n=15$) and repeat ($n=19$) intentional self-poisoning groups. At the time of the interview there were no significant differences between the two self-poisoning groups on the variables of sex, their current age, education, marital status, or history of other self-destructive behaviours [$\chi^2(1, N=34) = 0.41, p > .05$; $F(1, 32) = 0.38, p > .05$; $\chi^2(4, N=34) = 0.71, p > .05$; $\chi^2(3, N=34) = 0.69, p > .05$; $\chi^2(1, N=34) = 0.93, p > .05$]. There was no significant difference between the two self-poisoning groups on their ability to image as measured by the Betts QMI Vividness of Imagery Scale [$F(1, 32) = 0.01, p > .05$]. However, there was a significant difference between the self-poisoning groups in their ability to manipulate images [$F(1, 32) = 5.22, p < .05$] with the repeat group better able to manipulate images than the first time group.

8.2.2 Materials

Scales

The Betts QMI Vividness of Imagery Scale (Sheehan, 1967) was used to assess imagery ability. The questionnaire contains 35 items representing seven sensory modalities on vividness of imagery. Each item is rated on a seven point scale ranging from “perfectly clear and as vivid as the actual experience” to “no image present at all, you only know that you are thinking of the object”. This questionnaire has been reported to be reliable and valid (Sheehan, 1966, 1967). Test-retest reliability scores over two-weeks have been reported in the range of .72 to .75 and internal consistency alpha scores ranging from .90 to .94 (Westcott & Rosenstock, 1976). Validity was reported by Sheehan (1967) as being demonstrated by high correlations between scores on the Betts QMI Vividness of Imagery Scale and direct imagery evocation of imagery in a variety of experimental settings, and by the high correlations between the short and original form of the Betts QMI Vividness of Imagery Scale. The Betts QMI Vividness of Imagery Scale has been reported as not influenced by social desirability (Hiscock, 1987).

The Gordon Test of Visual Imagery (Gordon, 1949) was used to measure the ability of participants to manipulate or control visual images. The scale has 12 items that ask participants to change various aspects of the visual image of a car such as different colours and motion. Responses for each item are rated as one (Yes), two (No), or three (Unsure). Lower scores reflect a greater ability to manipulate images. The Gordon Test of Visual Imagery has been reported to have satisfactory test-retest reliability over a three-week period ($r = .84$) and internal consistency (.74 to .95; Juhasz, 1972; McKelvie & Gingras, 1974). However, one study has reported low Cronbach's alpha coefficients for the Gordon scale (.53 to .74; Westcott & Rosenstock, 1976). The scale has been reported to be uninfluenced by social desirability (Hiscock, 1978).

Visual Analogue Scales (VASs; McCormack, Horne, & Sheather, 1988) were used to measure participants' subjective responses to imagery. VAS ratings represented a score from zero to 100 of subjective response to imagery on seven bipolar dimensions: relaxed/tense, relaxed/anxious, calm/angry, unafraid/afraid, happy/sad, normal/unreal, and relieved/upright. A higher score reflected a more

negative experience. Three control VASs were also administered. They assessed the clarity of the imagery, how close the imagery script was to real life, and the extent to which other thoughts or images interfered with imaging the script content. Higher scores on these scales represented a more positive imagery experience. The VASs are presented in Appendix E.

VASs have been reported to be both valid and reliable measures of a range of subjective experience and behaviours (McCormack et al., 1988). They have been demonstrated to have a discriminative capacity in the predicted direction. VASs also correlate significantly with other measures of the subjective dimension. For example, significant correlations were demonstrated between depression and anxiety VAS and established measures of depression ($r = .58$) and anxiety ($r = .52$; Cella & Perry, 1986). VASs have also been demonstrated to have excellent test-retest reliability for emotions related to life events. Coefficients for retest times between seven and 14 days were $r = .94$ (Henderson, Byrne, & Duncan-Jones, 1981).

Imagery scripts

Personalised imagery scripts were constructed from interviews with the participants. Self-poisoning participants were interviewed about their most recent incident of self-poisoning, about a prescription medication ingestion incident such as taking headache tablets as prescribed, and about a neutral event such as making a cup of tea/coffee. Control participants were interviewed regarding a prescription medication ingestion incident and a neutral event. Control participants were included to ensure that the self-poisoning group did not respond differently to the non-poisoning sample to the control imagery. Control participants were not administered a standard self-poisoning script as research has indicated that it is not a valid method of obtaining information about clinical behaviours (Haines et al., 1995).

During the interview, participants were asked to describe each incident in terms of their environment, their behaviours, and their emotional and psychophysiological reactions. Leading questions were avoided and only information provided by the participants was included in the imagery script in the wording used by the participant.

Each script comprised of four stages: 1) Scene setting: a description of the physical environment and the circumstances existing before the incident; 2) Approach: a description of the events leading up to the incident and the participants' reactions; 3) Incident: where the actual event and the reactions to it were described; and 4) Consequence: a description of the events immediately after the incident and the reactions to those events. The script reflected the minutes before the incident and the minutes following the incident so a continuous sequence of events could be described. In addition, any physiological changes noted during this time were considered to result from the psychological experience of self-poisoning, as the time period was too short for any pharmacological effects.

8.2.3 Apparatus and Recording Equipment

Psychophysiological recordings were made using Chart 3.5.1 on a Macintosh Powermac 7200/75 computer linked to a MacLab/8s Data Acquisition System. Recordings were made at 1 mm/s with a sampling frequency of 200 samples/s.

The primary psychophysiological response measure was heart rate (HR). It was measured by electrocardiogram integrated via cardiometer to obtain a mean heart rate. Previous research has suggested that heart rate is one of the most sensitive measures in response to imagery, especially when response information is contained in imagery scripts (Bauer & Craighead, 1979; Carroll, Marzillier, & Watson, 1980; Marzillier, Carroll, & Newland, 1979; Van Egeren, Feather, & Hein, 1971). In addition, studies using the four-stage guided imagery procedure consistently report significant and large effects for HR (Brain, Williams, Haines, Stops, & Driscoll, 1996; Brain et al., 1998; Haines et al., 1995; Haines, Josephs, Williams, & Wells, 1998). Other measures were also recorded to encompass the idiosyncratic nature of the participants' responses to imagery (Fleming & Baum, 1987). These measures were respiration (RESP), integrated electromyogram (EMG), and skin conductance level (SCL). Electrocardiogram (ECG) was measured using miniature Gereonics Ag/AgCl electrodes attached at the second rib on both sides of the torso. RESP was recorded using a Pneumotrace respiration sensor band around the upper torso. Frontalis EMG was measured using two electrodes placed on the

left mid-putabletary line at positions 1/3 and 2/3 above the supra-orbital margin. An electrode placed at the mastoid process served as an earth reference. SCL was measured using two Med Associate 10-mm Ag/AgCl cup electrodes connected to the fingertips of the nondominant hand. The SCL measure was taken using the nondominant hand as described in previous psychophysiological research (Brain et al., 1998; Haines et al., 1995).

8.2.4 Procedure

During an initial session, participants gave written informed consent and then the questionnaires were completed. Participants were interviewed during a second session, regarding information for script construction. Using this information, imagery scripts were constructed prior to the psychophysiological recording session. During the recording session, participants had the psychophysiological recording equipment attached and were instructed to sit quietly while the procedure was explained. It was explained that imagery scripts based on their information given at interview would be presented. They were informed that the scripts were divided into four stages lasting approximately one minute each and that they would be instructed to close their eyes and image the material as clearly as possible. Prior to presentation of each script, a 30 second pre-imagery baseline period was recorded. There was a 10 second pause between stages where participants were asked to open their eyes and switch the scene off. This pause was brief to allow continuity of script content. After each script was presented, participants completed VASs for each stage of that script. The key elements of each stage were described prior to the participant making their ratings. The order of script presentation was counterbalanced (self-poisoning, prescription medication ingestion, neutral) to overcome any problems of adaptation-habituation. At the end of the experiment, the participants were debriefed.

This research was conducted with the approval of the relevant research ethics committee of the Department of Psychology at the University of the Tasmania. The precautions followed in the procedure were that the participant were asked to image personal events that they recalled without distress and were prepared to discuss, and they were informed that they did not have to answer questions with which they were not comfortable. The participant was also informed that they could withdraw at any

time from the study. The investigators were trained in clinical psychology and debriefed the clients after each session. No significant distress from participation in the research was observed by the investigator or reported by participants.

8.2.5 Data transformation, scoring and analysis

Scores were calculated from a 30 second period of each stage of each script. As the scripts were personalised, the scoring periods represented the part of each script that contained the most relevant information for that individual. Typically, this period occurred approximately 15-20 seconds into each script stage as described in previous research (Brain et al., 1998; Haines et al., 1995). Mean psychophysiological responses were calculated for HR, SCL, and EMG. Mean number of breaths per minute was used for RESP.

The data analysis of this experiment posed a number of challenges. The physiological and subjective measures resulted in the design being doubly multivariate (Tabachnick & Fidell, 2001, pp. 423-429), with repeated measures across three scripts each with four stages, and multivariate across four physiological dependent variables with non-commensurable scales (HR, EMG, RESP, and SCL) as well as having three groups as a between-subjects variable. Because of the complexity of the possible interactions it was thought appropriate to perform separate repeated measures analysis of variance (ANOVAs) for the individual dependent variables, and again control the type I error rate by using the one percent level rather than the five percent level as the critical value for statistical significance. Violation of the sphericity assumption in repeated-measures ANOVAs can be allowed for by a Huynh-Feldt correction in the F-test which will be applied. Differences significant at the five percent level will be noted as trends. Stage effects were elucidated by sequential comparisons of adjacent stages. Where chi-square analyses are conducted, the raw data for each analysis can be viewed in Appendix H.

8.3 Results

This section will first report on the demographic characteristics of the self-poisoning participants and then the nature of the overdose. The response of the self-poisoning participants to the self-poisoning and control imagery will then be discussed. As the self-poisoning imagery was significantly different from the control imagery for the self-poisoning group, further analyses were conducted to establish whether differences between the first time and repeat groups existed. Finally, the self-poisoning and control groups were compared on the control scripts to establish whether the self-poisoning group responded differently from the control group's response to everyday events such as taking medication and a neutral event.

8.3.1 The overdose

The intentional self-poisoning participants' mean age at the time of the overdose was 29.09 years ($SD = 9.28$; median = 22; range = 14 to 49 years). At the time of the overdose, the majority of the group was single (62%), with 26% married and 12% separated or divorced. Most participants had completed a high school level education or below (74%), 15% were undertaking or had completed a University degree, and 11% completing alternative educational courses such as a trade certificate. There were no significant differences between the first time and repeat self-poisoning groups on the demographic variables of age, education, or marital status at the time of the overdose [$F(1, 32) = 1.04, p > .01$; $\chi^2(4, N=34) = 3.82, p > .01$; $\chi^2(2, N=34) = 2.76, p > .01$, respectively].

The most frequently taken medications for the overdose were minor tranquillisers (50%) and salicylates (25%) followed by beta adrenergic blocking agents (13%). The tablets were taken in combination with alcohol by 31% of the sample. There were no significant differences in the types of medications taken or whether alcohol was consumed at the time of the overdose [$\chi^2(8, N=34) = 8.14, p > .01$; $\chi^2(1, N=34) = 0.41, p > .01$]. The repeat self-poisoning group had taken a median number of intentional overdoses of two ($M = 4.47$; $SD = 4.91$; range = 2 to 20).

The median time since the most recent overdose for the intentional self-poisoning participants was 1.96 years ($M = 4.86$, $SD = 6.57$; range = 1 month to 26 years). There was a trend for a difference between the two self-poisoning groups for the time since the overdose [$F(1, 32) = 5.71$, $p = .02$]. The mean time since the overdose for the first time group was 7.69 years ($SD = 8.39$; Median = 3.50) compared to 2.16 ($SD = 3.54$; Median = 1.50) years for the repeat group.

8.3.2 Psychophysiological and subjective response to imagery for the intentional self-poisoning group

Psychophysiological responses to the self-poisoning script were compared with those elicited by the control imagery for the entire intentional self-poisoning group to determine whether the methodology could differentiate responses to different imaged events. The results demonstrated that the response to the self-poisoning script was significantly different from the response to the control scripts. A significant script effect was demonstrated for HR [$F(2, 64) = 10.68$, $p < .01$] where significantly higher HR was recorded for the self-poisoning script compared to the prescription medication ingestion and neutral scripts. In addition, significant script \times stage interactions were evident for HR [$F(6, 192) = 3.96$, $p < .01$], and EMG [$F(6, 192) = 3.59$, $p < .01$]. These interactions will be analysed in more detail in subsequent sections. Figures 8.1 to 8.4 display the results for the psychophysiological measures for the three scripts for all of the self-poisoning participants.

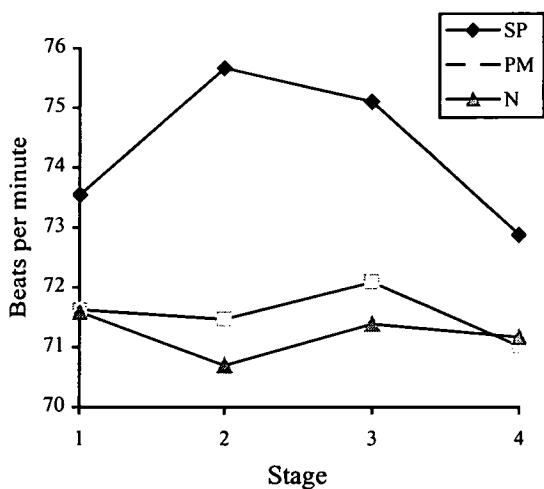


Figure 8.1: Mean HR for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

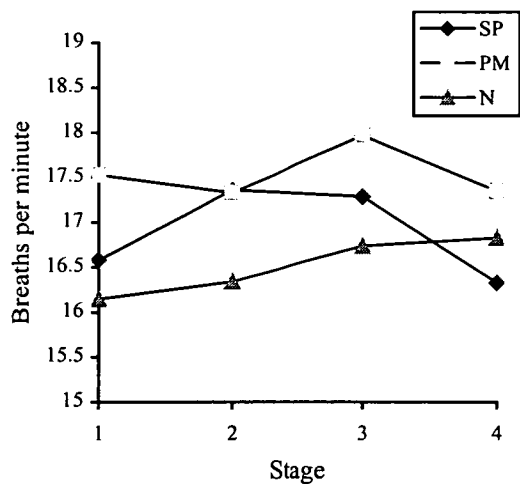


Figure 8.2: Mean RESP for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

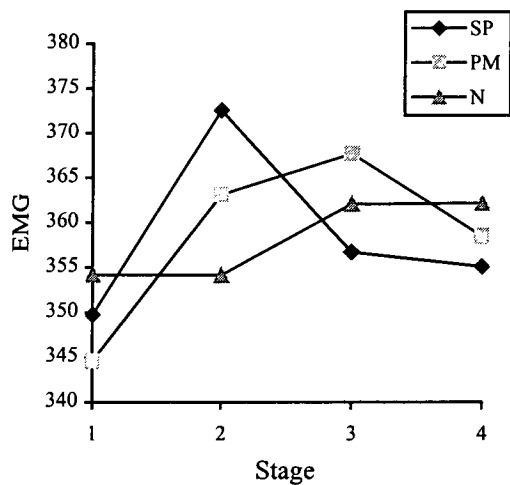


Figure 8.3: Mean EMG for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

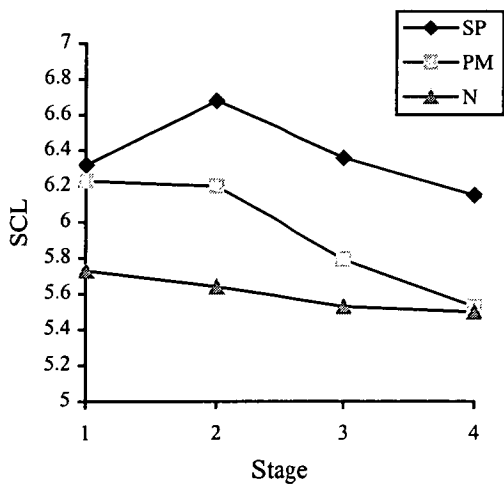


Figure 8.4: Mean SCL for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

For the subjective response to imagery, a significant script effect was demonstrated for all seven of the VASs: Relaxed/Tense [$F(2, 64) = 27.62, p < .01$], Relaxed/Anxious [$F(2, 64) = 25.67, p < .01$], Calm/Angry [$F(2, 64) = 31.93, p < .01$], Unafraid/Afraid [$F(2, 64) = 21.01, p < .01$], Happy/Sad [$F(2, 64) = 32.94, p < .01$], Normal/Unreal [$F(2, 64) = 37.33, p < .01$], and Relieved/Uptight [$F(2, 64) = 5.83, p < .01$]. Sequential comparisons of the scripts indicated that for all of the VASs except Relieved/Uptight, Normal/Unreal, and Unafraid/Afraid, the self-poisoning script was rated significantly higher than the prescription medication ingestion script and neutral scripts, and the prescription medication ingestion script was significantly higher than the neutral script. For Relieved/Uptight, Normal/Unreal, and Unafraid/Afraid, the self-poisoning script was rated significantly higher than only the neutral script. In addition, a significant script \times stage interaction was demonstrated for Relaxed/Tense and Relieved/Uptight. There was a trend for a script \times stage interaction for Relaxed/Anxious ($p = .02$), Calm/Angry ($p = .017$), and Normal/Unreal ($p = .03$). These interactions will be analysed in more detail in subsequent sections. Figures 8.5 to 8.11 display the VASs results for the three scripts for the self-poisoning participants. These results indicate that a differential response to imagery of the self-poisoning script consistent with heightened arousal and affect was evident psychophysiologically and subjectively.

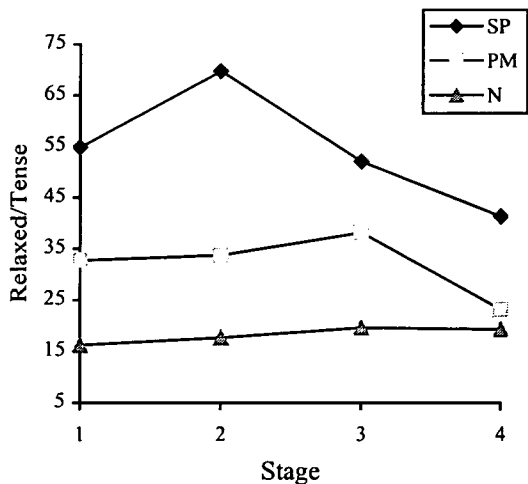


Figure 8.5: Mean scores on the Relaxed/Tense dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

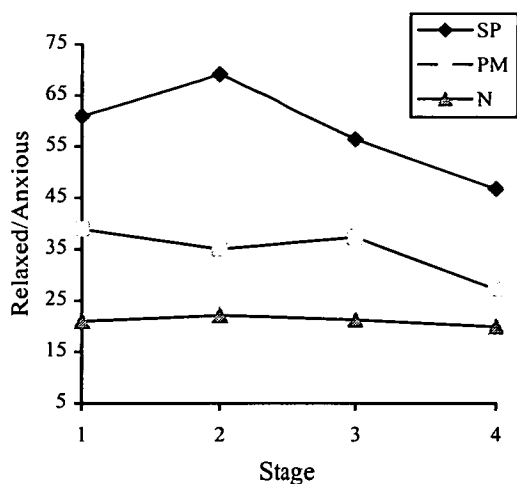


Figure 8.6: Mean scores on the Relaxed/Anxious dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

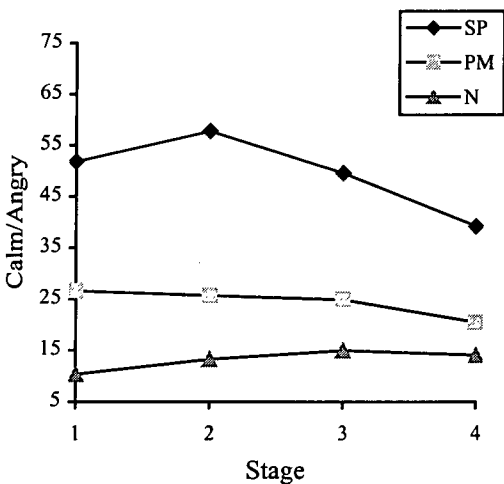


Figure 8.7: Mean score for the Calm/Angry dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

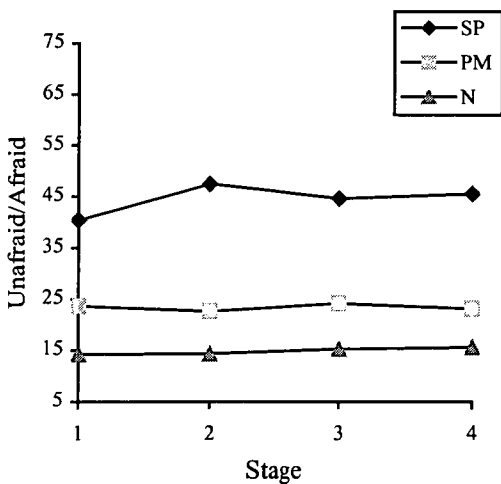


Figure 8.8: Mean score for the Unafraid/Afraid dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

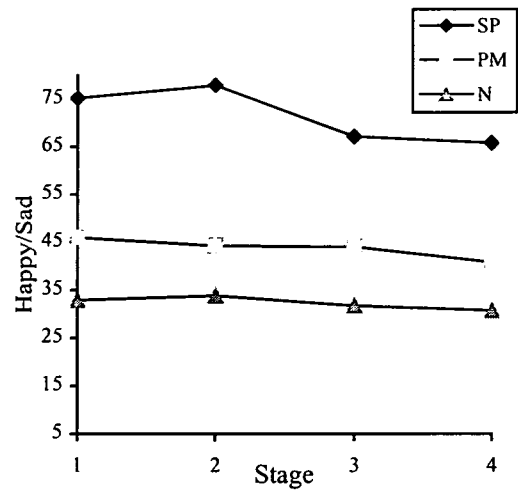


Figure 8.9: Mean scores on the Happy/Sad dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

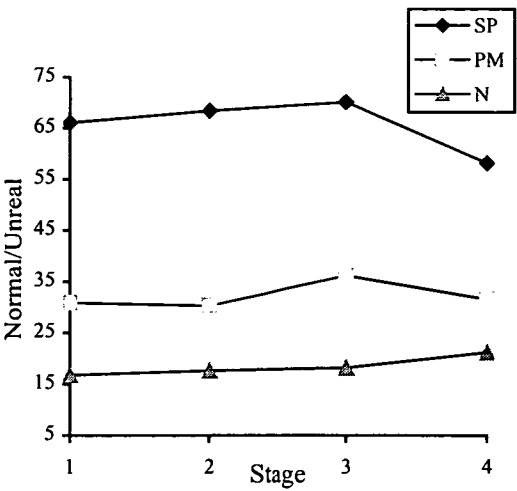


Figure 8.10: Mean scores on the Normal/Unreal dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

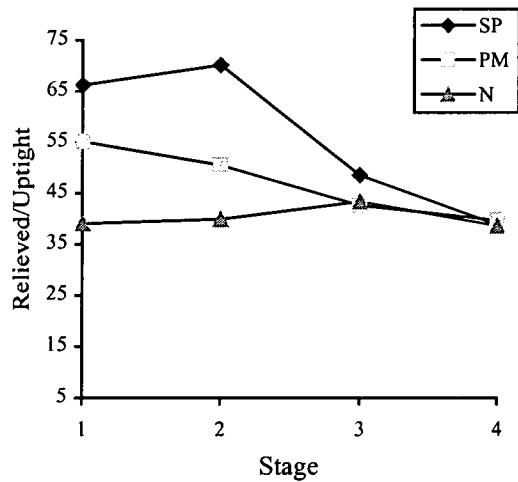


Figure 8.11: Mean scores on the Relieved/Uptight dimension for the self-poisoning group for the self-poisoning (SP), prescribed medication ingestion (PM), and the neutral (N) scripts

8.3.3 First time and repeat groups' psychophysiological and subjective response to self-poisoning imagery

A mixed design was used to determine whether there were any psychophysiological differences between the first time and repeat self-poisoning groups to the self-poisoning script. No significant group differences or group \times stage interactions were demonstrated for any of the psychophysiological measures. However, a significant stage effect was demonstrated for HR [$F(3, 96) = 6.38, p < .01$] and EMG [$F(3, 96) = 5.71, p < .01$]. Sequential comparisons of adjacent stages comparisons indicated a significant increase in HR [$F(1, 32) = 8.28, p < .01$] and EMG [$F(1, 32) = 8.37, p < .01$] from stage 1 (scene setting) to 2 (approach), a significant decrease in EMG from stage 2 (approach) to 3 (incident) [$F(1, 32) = 8.96, p < .01$] and a significant decrease in HR from stage 3 (incident) to 4 (consequence) [$F(1, 32) = 9.92, p < .01$]. As there were no significant group effects for the psychophysiological measures, the significant stage differences can be seen in Figure 8.1 and 8.3. The means and standard deviations for the psychophysiological results for all groups are displayed in Appendix F.

A mixed design was also used to determine whether there were any subjective differences between the first time and repeat self-poisoning groups to the self-poisoning script. The results indicated no significant group \times stage interactions or group difference for the subjective measures. There was a trend for a group difference for the Relieved/Uptight dimension [$F(1, 32) = 4.22, p = .04$] suggesting that the repeat self-poisoning group reported feeling more uptight than the first time self-poisoning group across the stages of the self-poisoning script.

As there were no significant group effects for the VASs, with the exception of Relieved/Uptight, the significant stage changes can be viewed by referring to Figures 8.5 to 8.10. Significant stage effects for the self-poisoning imagery were demonstrated for the following dimensions: Relaxed/Tense [$F(3, 96) = 6.99, p < .01$]; Relaxed/Anxious [$F(3, 96) = 4.82, p < .01$]; Calm/Angry [$F(3, 96) = 4.73, p < .01$]; Relieved/Uptight [$F(3, 96) = 9.74, p < .01$]. There was a trend for a stage effect for Happy/Sad [$F(3, 96) = 3.74, p = .016$] and Normal/Unreal [$F(3, 96) = 3.00, p = .04$]. Sequential comparisons of adjacent stages indicated a significant increase from

stage 1 (scene setting) to 2 (approach) for Relaxed/Tense [$F(1, 32) = 8.18, p < .01$], a significant decrease from stage 2 (approach) to 3 (incident) for Relaxed/Tense [$F(1, 32) = 8.42, p < .01$], Relaxed/Anxious [$F(1, 32) = 4.58, p < .01$], and Relieved/Uptight [$F(1, 32) = 15.82, p < .01$]. A trend for a decrease from stage 3 (incident) to 4 (consequence) was demonstrated for Relaxed/Tense [$F(1, 32) = 4.53, p = .04$]. For Calm/Angry, a significant decrease from stage 2 (approach) to 4 (consequence) was demonstrated [$F(1, 32) = 11.59, p < .01$]. There was no significant stage effect for Unafraid/Afraid. The means and standard deviations for the VASs are displayed in Appendix F.

Brain et al. (1998) demonstrated differential subjective responses to imagery depending on the time period between the occurrence of the behaviour and participation in the research. Consequently, six self-poisoning participants who had engaged in their self-poisoning incident within six months of the session were excluded in accordance with the definition of groups adopted by Brain et al. The subjective response to the self-poisoning imagery was reanalysed with no resulting change in the direction or trend of the results. The reanalysed results did demonstrate a trend for an additional group effect for Relaxed/Anxious with the repeat self-poisoning group reporting significantly greater anxiety at each stage of the self-poisoning script than the first time self-poisoning group [$F(1, 26) = 4.62, p = .04$]. Only minor changes in the results to the sequential comparisons of adjacent stages analyses were noted. For the Relaxed/Anxious dimension, additional significant stage differences were noted from stage 1 (scene setting) to 2 (approach) [$F(1, 26) = 8.23, p < .01$], 2 (approach) to 3 (incident) [$F(1, 26) = 7.72, p = .01$], and 3 (incident) to 4 (consequence) [$F(1, 26) = 16.07, p < .01$].

8.3.4 Self-poisoning and control group comparisons for prescribed medication ingestion and neutral scripts

The purpose of this analysis was to determine whether the responses of the self-poisoning participants to the control scripts were similar to that of control participants. A mixed design indicated that the only significant difference evident on the four psychophysiological measures for the neutral and prescription medication ingestion scripts was EMG where a significant group [$F(1, 57) = 5.84, p < .01$] and a trend for a group \times stage effect was demonstrated [$F(3, 171) = 3.98, p = .017$].

Sequential comparisons of adjacent stages indicated a significant difference between the two groups between stages 1 (scene setting) and 2 (approach) [$F(1, 66) = 5.97, p < .01$] but the other comparisons were not significant. The control group displayed no change in EMG between these stages whereas the intentional self-poisoning group displayed an increase in EMG between stages 1 and 2 across scripts. There were no significant stage or script \times stage effects for the psychophysiological responses to the control scripts.

For the subjective responses to the control scripts, a significant group difference was demonstrated for the Relaxed/Tense, Happy/Sad, Unafraid/Afraid and Normal/Unreal dimensions of the VASs [$F(1, 66) = 36.67, p < .01$; $F(1, 66) = 8.90, p < .01$; $F(1, 66) = 8.17, p < .01$; $F(1, 66) = 9.80, p < .01$, respectively]. Overall, self-poisoning participants rated themselves as significantly less happy, more tense, afraid and more unreal on both control scripts compared to the control group. On the Relaxed/Tense dimension there was a trend for a group \times stage interaction [$F(3, 198) = 3.45, p = .02$]. There were no significant group differences for the Relaxed/Anxious, Calm/Angry, and Relieved/Uptight dimensions.

The subjective response to the control imagery was further examined to determine whether the responses were appropriate given imagery content. A significant script effect was evident for Relaxed/Anxious [$F(1, 66) = 29.63, p < .01$], Calm/Angry [$F(1, 66) = 36.69, p < .01$], Unafraid/Afraid [$F(1, 66) = 9.56, p < .01$], Happy/Sad [$F(1, 66) = 25.02, p < .01$], and Normal/Unreal [$F(1, 66) = 10.46, p < .01$]. On all of these dimensions the prescribed medication ingestion script was reported to be significantly less positive than the neutral script [$F(1, 66) = 29.63, p < .01$; $F(1, 66) = 36.69, p < .01$; $F(1, 66) = 9.56, p < .01$; $F(1, 66) = 25.02, p < .01$; $F(1, 66) = 10.46, p < .01$, respectively]. A significant stage effect was demonstrated for Relaxed/Tense [$F(3, 198) = 10.18, p < .01$], Relaxed/Anxious [$F(3, 198) = 9.81, p < .01$], and Happy/Sad [$F(3, 198) = 5.59, p < .01$]. On these dimensions, there was a significant decrease from stage 3 (incident) to 4 (consequence) [$F(1, 66) = 24.25, p < .01$; $F(1, 66) = 14.62, p < .01$; $F(1, 66) = 8.98, p < .01$, respectively]. A script \times stage interaction was demonstrated for Relieved/Uptight [$F(3, 198) = 10.49, p < .01$]. Further analysis indicated no significant stage changes for the neutral script

but both the intentional self-poisoning and control groups reported feeling more relieved from stage 2 (approach) to 3 (incident) [$F(1, 67) = 10.10, p < .01$] for the prescribed medication ingestion script.

Finally, the control VASs were analysed for any differences between the self-poisoning and the control group. There were no significant group differences for the Not Close-Close dimension. There was a significant group difference for Unclear-Clear where the control group reported that the control scripts were significantly more clear than the self-poisoning group [$F(1, 66) = 6.34, p = .01$]. For the No Interference-Interference dimension, a trend for a group effect [$F(1, 66) = 4.90, p = .03$] and a script \times stage \times group interaction [$F(3, 198) = 3.47, p = .02$] was demonstrated.

Overall, there were few significant group differences between the self-poisoning and control groups on their psychophysiological responses to the control scripts but some subjective differences indicating a less positive experience for the self-poisoning group to the control scripts.

8.4 Discussion

8.4.1 Intentional self-poisoning group results

The results indicated that the intentional self-poisoning groups experienced the self-poisoning script significantly differently to the control scripts. The self-poisoning participants responded with significantly higher HR to the self-poisoning script compared to the control scripts, and significant differential stage effects were evident for EMG and HR. Subjectively, the VAS results indicated that the self-poisoning participants felt significantly more negatively during the self-poisoning script than the prescription medication ingestion script, which was experienced less positively than the neutral script.

It was speculated that the repeat group would experience a greater response at the approach stage and a greater decrease in psychophysiological arousal when

taking the overdose due to the reinforcement from past incidents compared to the first time group. Analysis of the self-poisoning script for the two intentional self-poisoning groups indicated no significant group differences on the psychophysiological measures, and only a trend for a group difference on one of the seven VASs. This suggests that both the first time and repeat groups of self-poisoning participants experienced the self-poisoning imagery in the same way. This suggests that multiple experiences and reinforcement from self-poisoning behaviour may not change the psychophysiological component of the event. It may be that any changes associated with the progress of the suicidal process are psychological characteristics such as symptomatology as reported in Chapter 4. However, the failure to find the expected greater intensity at the approach stage for the repeat group representing a more intense suicidal crisis does not exclude this possibility. The results indicated a nonsignificant trend for the repeat group to report a more intense subjective experience. It may be that with a larger sample size, an increased subjective intensity for the repeat group may be demonstrated.

It was also expected that the pattern of psychophysiological arousal associated with the self-poisoning behaviour would reflect a tension reduction pattern. This pattern was expected to reflect an increase in psychophysiological arousal prior to the behaviour and a reduction when the actual overdose was being taken (incident). The results indicated that a significant increase in HR and EMG was recorded prior to the self-poisoning incident, then a significant reduction in EMG when the overdose was being taken (incident), with a significant reduction in HR immediately after the overdose (consequence). Subjectively, the pattern of response to the self-poisoning script was consistent with the psychophysiological response. The self-poisoning participants reported an increase in tension prior to the self-poisoning incident, with a reduction in tension, anxiety, and feeling uptight when the overdose was being taken (incident). There was a trend for a further reduction in tension and a reduction in feeling unreal immediately after the overdose was taken (consequence).

The psychophysiological and subjective results to the self-poisoning script are consistent with the tension reduction theory and the self-poisoning literature. The literature suggested that intentional self-poisoning behaviour may be a strategy to

manage tension associated with the intolerable emotional state (Crowe & Bunclark, 2000; O'Connor et al., 2000). A reduction in psychophysiological arousal and psychological distress whilst taking the overdose may reinforce the behaviour, making it more likely to recur (Goldston et al., 1996). It has also been suggested that if the reduction is immediate then the reinforcement is more potent (Lester, 1987). The results suggest that such an immediate reduction in psychophysiological arousal and negative affect may occur in intentional self-poisoning behaviour. Additional reinforcement may occur from a further reduction immediately after the incident. This suggests that the resulting reinforcement associated with the tension reduction may be a mechanism by which some people enter into a pattern of repetition of intentional self-poisoning behaviour. This is supported by the finding reported in Chapter 4 that the repeat group were significantly more motivated for tension reduction reasons than the first time group suggesting that tension reduction may contribute to repetitive intentional self-poisoning.

8.4.2 Intentional self-poisoning and control group comparisons

It was expected that the self-poisoning and control groups would not differ in their psychophysiological or subjective responses to the control scripts. The results indicated that only EMG significantly differentiated the self-poisoning and control participants. The self-poisoning participants displayed significantly more muscle tension during the control scripts than the control group. Some group differences were also noted on the subjective measures. The self-poisoning group reported feeling less happy, more tense, afraid and more unreal on both control scripts compared to the control group. There were no consistent significant group interaction effects across psychophysiological measures suggesting a differential response to standard events. Therefore, this suggests that the self-poisoning participants did not respond aberrantly to standard events. It may be that the overall group differences in EMG resulted from the self-poisoning participants attending the session to image their overdose. Having to image the self-poisoning script during the session may have resulted in less positive experience during the recording session.

The psychological lag reported in the self-mutilation psychophysiological literature was not demonstrated in this study. One previous study using the four

stage guided imagery procedure has described a psychological lag for self-mutilation participants who have not recently engaged in the behaviour (Brain et al., 1998). The authors suggested that once self-mutilation was no longer part of the individual's repertoire then it may be reinterpreted affecting the subjective response to imagery. However, the psychological lag did not occur in the present sample of intentional self-poisoning participants. Those who had taken their overdose more than six months ago reported their psychological reduction of tension at the same stage as their decrease in psychophysiological arousal. It may be that the psychological lag phenomenon is specific to individuals who engage in repetitive self-mutilation.

8.4.3 Methodology validity

Overall, these results reinforce the validity of the four stage guided imagery methodology in eliciting appropriate psychophysiological responses to clinical behaviours. As mentioned earlier, the methodology was able to elicit differential psychophysiological responses to the three scripts. The results also indicated appropriate responses were elicited to the control scripts. There were no significant psychophysiological responses to the control scripts. Thus, it appears that taking medication as prescribed and making a cup of tea were almost psychophysiological neutral.

The subjective response to the control scripts indicated that the prescribed medication ingestion script was experienced less positively than the neutral script, as expected. Few stage changes were noted for the subjective responses to the control scripts. Increasing relaxation and happiness were reported from stage 3 (incident) to 4 (consequence) to both scripts. No other subjective changes were noted to the neutral script suggesting that it was experienced as psychologically neutral. For the prescribed medication ingestion script, the participants reported increasing feelings of relief as the script progressed. This suggests that taking medication as prescribed may provide psychological relief from feeling uptight.

The control VASs indicated that participants reported that their scripts were very close to the actual event, and that their imagery was very clear. For the self-poisoning script, scores again suggested that the scripts were a good description of

actual events, that the self-poisoning script could be imaged clearly and that only minor interference occurred during imagery. Hence, it appears that the imagery scripts were a valid description of the actual event that could be imaged clearly with minimal interference.

8.4.4 Clinical implications

If a tension reduction mechanism is operating for individuals who engage in intentional self-poisoning, then it may contribute to the development of self-poisoning as an habitual behaviour. The reinforcing effects of the decrease in psychophysiological arousal and psychological distress would make an individual more likely to choose the behaviour again when experiencing similar conditions. As discussed earlier, the immediate decrease in psychophysiological arousal and psychological distress when the tablets were being swallowed would provide potent reinforcement (Lester, 1987). This has treatment implications in relation to the timing and type of treatment administered. For individuals where a tension reduction pattern of psychophysiological arousal is operating, covert sensitization has been suggested. Recent research examining the tension reduction mechanism of self-mutilation has indicated that covert sensitization would be the treatment of choice as it alters the reinforcement associated with the behaviour (Brain et al., 1998; Cautela & Kearney, 1986). It has been suggested that covert sensitization is a promising treatment option for suicidal behaviours (Jurgela, 1993). The results of this study suggest that covert sensitization may be appropriate for those patients who engage in repetitive self-poisoning behaviour where the function of the behaviour appears to be tension reduction. However, it may only be appropriate for low risk suicidal behaviour. Covert sensitization would not be appropriate for those patients whose initial behaviour was high risk as it may place them at risk of death or severe injury (Bachman, 1972).

The results also suggest that there is escalating psychophysiological arousal and negative affect prior to the incident. Therapy also needs to address the causes of this escalation, and alternative strategies for dealing with such tension. As discussed in previous chapters, dialectical behaviour therapy (DBT) addresses affect regulation by helping the individual to understand their suicidal behaviour via behavioural

analysis, and then teaches the building of skills including distress tolerance and problem solving (Linehan, 1995). This study suggests that addressing distress tolerance may contribute to the promising results of DBT in reducing repetitive suicidal behaviours (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991).

8.4.5 Limitations

The conclusions drawn from this study must be considered as tentative as the present experiment is a preliminary clinical study with several limitations. For practical and ethical reasons, most of the sample chosen had taken their overdose some time ago. With such a retrospective sample, it is possible that the recall of the event may not be accurate and subject to biases (Barclay & Smith, 1992). However, Janson (1990) reported that noteworthy events such as being hospitalised for an overdose could be recalled for longer periods than other socially undesirable events, and there is evidence that the psychophysiological responses do not appear to be affected by recall biases (Brain et al., 1998). Nevertheless, future research could examine intentional self-poisoning incidents that have occurred more recently to reduce the possibility of an effect of recall bias on the self-report data. A further limitation of this study was the relatively small sample size and the selection of the sample. The sample was composed of community volunteers who responded to notices in mental health facilities and University noticeboards. Further research is required to replicate the findings with a larger and more representative sample.

Trends demonstrated for the psychophysiology and psychological responses for first time and repeat self-poisoning groups may not apply to all individuals who have taken an intentional overdose. The results appear to show some heterogeneity especially in the repeat group. This suggests that there may be subgroups within these groups that respond differently. Research has reported that there may be subgroups of individuals who repeatedly attempt suicide and the results from Chapter 4 also suggest the existence of subgroups. Bancroft and Marsack (1977) suggested three types of repeat individuals: those individuals engaging in a chronic, habitual pattern of repetition, the individual who repeats several times in a short period, and those making a one-off, very occasional repeat. It may be that the chronic, habitual repeat group, who are described very similarly to those individuals who self-mutilate,

may be more influenced by the tension reduction mechanism as described for self-mutilation. Future research could examine such subgroups of the repeat group, to determine whether all types of individuals who repeat self-poisoning experience the same pattern of psychophysiological response to the incident.

A further limitation of this study is the variable time period scored in each stage of each script. As the scripts are personalised, they are qualitatively different and thus a non-standardised time period for scoring each stage was used as described in the methodology (Haines et al., 1995). However, future research could standardise the script construction so that the pertinent personalised information falls into the same time period. This way a standard 30-second time period, such as the 15 to 45 second section of each one minute stage, could be used to score the stages of each script.

8.4.6 Conclusion

The results of this study indicate that intentional self-poisoning behaviour may serve to reduce psychophysiological arousal and negative affect. The reduction may reinforce the behaviour, increasing the likelihood of repetition. The results add objective evidence to the self-report studies that self-poisoning may be a coping strategy for increasing negative affect and tension (O'Connor et al., 2000). However, not all of those who engage in intentional self-poisoning behaviour go on to repeat. It appears that tension reduction may be just one mechanism that contributes to an individual's potential to repeat. It may be the consequences after the overdose, such as attending a hospital or significant others' reactions, also contribute to an individual's likelihood to repeat (Dorer, Feehan, Vostanis, & Winkley, 1999). Cognitive factors, such as impaired perceived problem solving and coping resources demonstrated in Chapter 6, may also determine whether individuals progress from their first overdose to subsequent incidents. Further research is required to understand the contribution and relationship between these factors in the repetition of suicide attempts. This will be further discussed in Chapter 9.

Chapter 9

Conclusions

The purpose of this thesis was to develop a profile of those who make repeat suicide attempts with the aim of identifying factors that can be treated in psychological therapy. The research compared groups of first time and repeat suicide attempt patients on their descriptive and cognitive-behavioural characteristics, and their psychophysiological and subjective experience of the attempt. The results indicated that the repeat group could be differentiated from the first time group and a community control group on several variables. These included symptomatology which was of a more severe nature and was reported as more distressing. In addition, a larger proportion of the repeat group were motivated for tension reduction reasons, and a greater proportion of the repeat group planned their overdose for more than one day compared to the first time group. The repeat group was also differentiated from the first time group by greater levels of hopelessness and poorer perceived problem solving which reflected low problem solving confidence, a tendency to avoid problem solving behaviour, and a low sense of control over emotions and behaviour when solving problems. Finally, the repeat group reported severely impaired cognitive, emotional and social resources compared to the first time group. These results reflected a very low sense of self-worth and the lack of a positive outlook about the future, impaired ability to accept and express emotions, and impaired social support.

The research also indicated many similarities between the first time and repeat groups. The two groups could not be distinguished in this research by demographic variables with the exception of employment status, where the repeat group was less likely employed. Despite the repeat group reporting more severe symptomatology, the symptomatology profiles for the first time and repeat groups were similar, with depressive symptoms the most severe symptoms for both groups. The majority of the first time and repeat groups reported that depression and avoidance were the most important motivations for the attempt, the majority of both groups made an impulsive attempt, and there was no significant difference between the two groups in suicide intent. In addition, both the first time and repeat groups were likely to use disengagement strategies such as problem avoidance and wishful thinking when coping with stress, report impaired physical and spiritual coping resources and high levels of irrational beliefs. Finally, the results suggest that both

groups may experience the attempt with a similar psychophysiological and subjective response reflecting a tension reduction pattern.

These results suggest that the repeat group may be quantitatively different, rather than qualitatively different, from the first time group on these variables. This is consistent with a recent literature review conclusion that the characteristics of suicidal individuals are not necessarily abnormal or qualitatively different from those evident in non-suicidal individuals (O'Connor & Sheehy, 2001). Indeed, the same appears to apply to the repeat group compared to the first time group. Those who repeat in a clinical sample of adults appear to be a more severe version of the first time group rather than being a qualitatively distinct group. However, the similarities between the first time and repeat groups should not obscure the importance of considering the repeat group separately, especially in a clinical setting. The more severe clinical presentation, severely impaired coping resources and perceived problem solving in combination with a history of attempts suggests that they are a high risk group. This is consistent with conclusions drawn from research examining a young adult inpatient sample (Rudd, Joiner, & Rajab, 1996).

This research also suggests the importance of a tension reduction mechanism in intentional self-poisoning behaviour. The study reported in Chapter 8 suggested that both the first time and repeat groups may experience a tension reduction pattern of psychophysiological arousal and affective experience when taking the overdose. This suggests the importance of arousal management in treating those who make suicide attempts. However, it may be that the role of tension reduction is more important for a subgroup of the repeat group. The research reported in Chapter 4 indicated that the repeat group was significantly more likely to report being motivated for tension reduction reasons than the first time group. The tension reduction motivation was correlated with the hostility dimension of the symptomatology measure for the repeat group. This suggests that there may be a subgroup of the repeat group who recognise the role of intentional self-poisoning behaviour in arousal management and purposefully engage in the behaviour to serve this function. This profile is similar to that of those who engage in self-mutilation, which research has shown to be associated with hostility symptoms and appears to be maintained by a tension reduction mechanism (Brain, Haines, & Williams, 1998;

Herpertz, 1995). Consequently, similar treatments such as covert sensitization may be implicated for repeat intentional self-poisoning patients as part of the treatment package. However, self-mutilation is typically of low suicidal intent and the tension reduction motivation for the repeat group was not significantly correlated with suicidal intent. This suggests that there may be individuals of both high and low intent engaging in the behaviour for tension reduction reasons. Consequently, the appropriateness of covert sensitisation for those driven by tension reduction would have to be considered in light of suicide intent for each individual.

The differential characteristics associated with the repeat group in this research appear to reflect two types of impairments, cognitive and emotional. The results suggest that the repeat group may have a highly negative cognitive schema about the self and the future. This is demonstrated in the repeat group's results of a low sense of self-worth, lacking confidence, lacking a positive outlook about the future, and severe hopelessness reflecting negative expectations about the future. It may be that these severely negative schemas about the self and future reflect a vulnerability that places an individual at risk for repetition. This has been described by Beck's (1983) cognitive triad in the cognitive-behavioural model of suicidality where the cognitive triad reflects negativity and hopelessness (Rudd, Joiner, & Rajab, 2001). As the coping resources inventory examined the individual's experiences in the past six months, this suggests that this cognitive state may be enduring and may reflect a trait vulnerability. This conclusion is consistent with previous research that has suggested that a negative cognitive style represents a vulnerability to suicidality (Alloy Abramson, & Francis, 1999). Consequently, the severely negative cognitive triad may be one type of a vulnerability to repetition.

These results highlight the importance of cognitive therapy for those attempting suicide, but in particular for the repeat group. As the negative cognitive schema about the self and future may be one of the components contributing to repetition, cognitive therapy is essential. The treatment literature has indicated the possible efficacy of cognitive-behavioural treatments over other types of treatment in reducing repetition (Weishaar, 1996). In a recent review of the treatment literature, it was concluded that reducing suicide attempts requires longer-term treatment

targeting the modification of schemas associated with personality disturbance (Rudd et al., 2001).

The results also suggest an emotional impairment for the repeat group reflecting emotional dysregulation. This is demonstrated in this research by the three results; low emotional resources indicating difficulty accepting and expressing emotions, the symptomatology results reflecting high levels of distress from their symptomatology, and the perceived problem solving result suggesting that the repeat group felt that they could not control their emotions when solving interpersonal problems. This is consistent with the clinical impression of those who make repeat attempts and the treatment literature which highlights emotional dysregulation (Rudd, Ellis, Rajab, & Wehly, 2000; Rudd, Joiner, & Rajab, 2001; Rudd et al., 1996). This characteristic is typically associated with borderline personality traits, and the relevance of the borderline cluster of personality traits to repetition has been demonstrated (American Psychiatric Association, 1994; Rudd et al., 1996). As the participants in this research did not differ in their Axis II diagnoses, this suggests that the borderline personality trait of emotional dysregulation, not necessarily the whole personality disorder cluster, may represent a vulnerability to repeat attempts. Indeed, a recent cluster analysis highlighted the importance of insufficient emotion regulation across personality types in a suicidal psychiatric sample of adults (Rudd, Ellis et al., 2000). It may be that a more severe impairment in emotion regulation is a vulnerability for repetition.

The emotional and cognitive impairments associated with repetition described above may affect other variables associated with repetition. For example, social resources may be reduced due to the impact of these emotional and cognitive impairments. Indeed, those diagnosed with borderline personality disorder have impaired interpersonal relationships which would reduce their social resources (Benjamin & Wonderlich, 1994). In addition, such impairments may contribute to substance abuse. Substance abuse may be used to regulate or escape from negative affect, or to reduce negative self-awareness associated with the negative cognitive schema about the self (Baumeister & Scher, 1988; Toneatto, 1995).

The implication of emotional dysregulation highlights the importance of arousal management and skills training in emotion regulation for the repeat group. In relation to the cognitive-behavioural model of suicidality, Rudd et al. (2001) discussed the importance of the core belief reflecting poor distress tolerance. Rudd et al. suggested that the core belief that they cannot tolerate painful emotions is an important part of the cognitive system of the suicidal mode. They proposed that cognitive-behavioural treatment strategies and skills training is required to change the belief and develop the ability to regulate emotions. It has been concluded from a review of treatment studies that to impact on repetition, longer term treatment is required that targets specific skills deficits such as emotion regulation and distress tolerance (Rudd, Joiner, Jobes, & King, 1999)

The main limitation of this research design was in the identification of a cause or effect relationship between repetition and the characteristics identified as being associated with repetition. The type of association could not be elucidated from this research due to the cross-sectional design. Consequently, whether the differential characteristics of the repeat group identified in this research are existing vulnerabilities or represent a deterioration over time, or both, requires further research. Rudd et al. (1996) have suggested that a first attempt patient with impairments in perceived problem solving and coping may progress to make repeat attempts with more severe psychopathology and symptomatology if timely intervention is not provided. The authors indicated some evidence for this perspective, suggesting that perceived problem solving and coping impairments may be vulnerabilities that result in a deterioration of symptoms over time in a young adult sample. The results of the present research suggest that the repeat group may have more severe emotional dysregulation and negative self- and future-oriented schemas which would be reflected in poor coping resources and perceived problem solving. These may act as a vulnerability for repeat suicide attempts and may be identifiable at the first attempt. The behavioural approach to suicidality suggests that after the first attempt, the individual experiences various reinforcements associated with the behaviour making the behaviour more likely to be chosen again (Frederick & Resnick, 1971). The cognitive-behavioural model of suicidality expanded this idea, conceptualising the first attempt as sensitising the negative schemas. The sensitised schemas indicate that subsequent attempts are more easily triggered (Rudd

et al., 2001). The individual may progress through the suicidal process with subsequent attempts, increasing symptomatology and substance abuse, and a further deterioration in coping resources and perceived problem solving. This proposed process from a first attempt to repetition could be examined in further research by assessing a group of first attempt patients over time. The changes measured between successive attempts would determine which variables represent vulnerabilities and which of these variables deteriorate over time.

An additional direction for future research into repetition is the implication of subgroups within the repeat group. The results from Chapter 4 suggest that there may be at least two subgroups in the repeat group. The results indicated a large percentage of the repeat group who made impulsive attempts, and a smaller percentage who engaged in a planned attempt. This suggests that there are at least two different processes occurring for impulsiveness, one where the individual continues to make impulsive attempts, and another where the individual may become more ruminative or planned in their behaviour. In addition, the variability of the substance use results suggested there may be different subgroups with varying usage levels. Complexities associated with the repeat group are consistent with previous research that has developed typologies of suicidal behaviour. Such studies have not identified the existence of a simple repeat group suggesting that within the repeat group other subgroups may exist (Henderson & Lance, 1979; Kiev, 1989; Kurz et al., 1987). Consequently, future research may benefit from collecting information from a large sample of those who have made repeat attempts and conducting more complex analyses such as cluster analyses to elucidate possible subgroups.

In conclusion, this research has demonstrated differential characteristics associated with repetition for a clinical adult sample. A profile of those who make repeat attempts has been developed and the similarities between the first time and repeat groups recognised. The profile identifies some cognitive-behavioural factors that had not been previously empirically associated with repetition in a clinical sample of adults. In addition, the psychophysiological process of the attempt for a first time and repeat group of intentional self-poisoning patients has been examined for the first time. The results provide further evidence for the use of a suicidal process perspective in understanding how suicidal behaviours develop and may be

maintained. Further, the results suggested targets for improving treatment approaches for the repeat group such as addressing affect regulation and the importance of cognitive-behavioural therapies. Two directions for future research have been highlighted that would further elucidate the processes associated with the factors identified in this research as being important to repetition.

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Appendices

Appendix A

Unpublished questionnaires used in Chapter 4

Demographic Information

Identification Number: _____

Sex: 1. Female 2. Male

DOB / Age: _____

Marital Status: 1. Single 3. Separated/Divorced
 2. Married/de Facto 4. Widow/er

Education: Level Completed
 1. Primary 4. TAFE
 2. Secondary 5. University
 3. Year 12/HSC

Occupation: _____

Occupation of family's main income earner:

Medication

Are you currently taking any medication? 1. Yes 2. No

If yes, what kind and dosage? _____

Psychiatric History

Have you been diagnosed with a mental illness? 1. Yes 2. No

If yes, what was the diagnosis? _____
 age of onset? _____

Have you ever been on the psychiatric ward / psychiatric hospital?
 1. Yes 2. No

If yes, Diagnosis/major symptom? _____
 Number of hospitalizations? _____
 Year of first hospitalization? _____
 Year of most recent hospitalization? _____
 Longest hospital stay? _____

Family History of Suicide

Do you have any relatives who have intentionally self-harmed/committed suicide?

1. Yes 2. No

If yes,

| Relative | Number Attempts | Methods Used | Did they complete the act? |
|----------|-----------------|--------------|----------------------------|
| | | | |

History of Suicide

How many times have you previously attempted suicide/taken an overdose? _____

| When ? | Method? |
|---------|---------|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| Others: | |

Have you engaged in any other self-destructive behaviours eg. self-mutilation?

1. Yes 2. No

If yes, What type? _____

When? _____

Overdose Information

When did you take the overdose?

Date: _____ Approx. Time: _____

| Drug | Number? | Dosage? | Prescribed? |
|--|---------|---------|-------------|
| Non-barbiturate Hypnotics | | | 1(Y) 2 (N) |
| Minor Tranquillizers (Valium, anti-anxiety) | | | 1(Y) 2 (N) |
| Major Tranquillizers (antipsychotic) | | | 1(Y) 2 (N) |
| Antidepressants | | | 1(Y) 2 (N) |
| Salicyclics (aspirin, analgesics, paracetamol) | | | 1(Y) 2 (N) |
| Other: | | | |

** Were these taken in combination with alcohol?

1. Yes

2. No

Details:

Control Participants Demographic Information

Identification Number: _____

Sex: 1. Female 2. Male

DOB / Age:

Marital Status: 1. Single 3. Separated/Divorced
2. Married/de Facto 4. Widow/er

Education: Level Completed

1. Primary
2. Secondary
3. Year 12/HSC
4. TAFE
5. University

Occupation:

Occupation of family's main income earner:

Medication

Are you currently taking any medication?: 1. Yes 2. No

If yes, what kind and dosage? _____

Suicide and Psychiatric History

Have you ever attempted suicide? 1. Yes 2. No

Have you ever engaged in self-destructive behaviours? 1. Yes 2. No

Have you been diagnosed with a mental illness? 1. Yes 2. No

If yes, what was the diagnosis? _____

age of onset? _____

Have you ever been hospitalized for a mental illness? 1. Yes 2. No

If yes, Number of hospitalizations? _____

Year of first hospitalization?

Year of most recent hospitalization?

Longest hospital stay? _____

Family History of Suicide

Do you have any relatives who have attempted/committed suicide? 1. Yes 2. No

If yes,

| Relative | Number Attempts | Methods Used | Did they complete the act? |
|----------|-----------------|--------------|----------------------------|
| | | | |

Motivation Questionnaire

| <u>Depression</u> | Not At All | A Little | A Great Deal |
|---|------------|----------|--------------|
| Did you want to die? | 1 | 2 | 3 |
| Did you feel there was no hope? | 1 | 2 | 3 |
| Did you feel a failure? | 1 | 2 | 3 |
| Did you feel you had let others down? | 1 | 2 | 3 |
| Did you feel sad? | 1 | 2 | 3 |
| <u>Extrapunitive</u> | | | |
| Did you want to make someone sorry? | 1 | 2 | 3 |
| Did you feel angry? | 1 | 2 | 3 |
| Did you think "I'll show him/her"? | 1 | 2 | 3 |
| Did you feel you wanted to hurt or upset someone? | 1 | 2 | 3 |
| Did you want to teach someone a lesson? | 1 | 2 | 3 |
| <u>Alienation</u> | | | |
| Did you feel lonely? | 1 | 2 | 3 |
| Did you feel you weren't needed? | 1 | 2 | 3 |
| Did you feel you had been left out of things? | 1 | 2 | 3 |
| Did you feel you'd been hurt? | 1 | 2 | 3 |
| Did you feel someone wanted you out of the way? | 1 | 2 | 3 |
| <u>Operant</u> | | | |
| Did you want someone to be different towards you? | 1 | 2 | 3 |
| Did you hope that someone would change? | 1 | 2 | 3 |
| Did you feel it was the only way to make someone see what they were doing to you? | 1 | 2 | 3 |
| Did you feel it was a way of making others understand you? | 1 | 2 | 3 |
| Did you feel you couldn't bear someone to leave? | 1 | 2 | 3 |
| <u>Modelling</u> | | | |
| Did you think "If others can do it so can I"? | 1 | 2 | 3 |

| | | | |
|---|---|---|---|
| Has anyone in your family spoke about attempting suicide? | 1 | 2 | 3 |
| Did you know anyone else who had overdosed? | 1 | 2 | 3 |
| Did you hear about overdosing on TV, radio, or read about it in the newspaper or magazines? | 1 | 2 | 3 |
| Did the fact that others do it affect you? | 1 | 2 | 3 |

Avoidance

| | | | |
|--|---|---|---|
| Did you feel you just had to get away from it all for a while? | 1 | 2 | 3 |
| Did you feel you just wanted to die? | 1 | 2 | 3 |
| Did you feel you had to get away while things straightened themselves out? | 1 | 2 | 3 |
| Did you feel you couldn't put up with it much more? | 1 | 2 | 3 |
| Did you feel you wanted to leave it to others to sort out? | 1 | 2 | 3 |

Tension Reduction

| | | | |
|---|---|---|---|
| Did you feel so tense you had to do something? | 1 | 2 | 3 |
| Did you feel anxious and it was the only way of coping? | 1 | 2 | 3 |
| Did everything seem not quite real before you did it? | 1 | 2 | 3 |
| Did taking the pills reduce your level of tension? | 1 | 2 | 3 |
| Did you feel less anxious after you had done it? | 1 | 2 | 3 |

Janus Face

| | | | |
|--|---|---|---|
| Did you feel you didn't care if you lived or died? | 1 | 2 | 3 |
| Did you feel uncertain if you wanted to live or die? | 1 | 2 | 3 |
| Did you feel you would take a chance on whether you lived or died? | 1 | 2 | 3 |
| Did you feel you wanted to live but also wanted to die? | 1 | 2 | 3 |
| Did you feel that it didn't matter if you lived or died? | 1 | 2 | 3 |

Intropunitive

| | | | |
|--|---|---|---|
| Did you feel that you deserved to be punished? | 1 | 2 | 3 |
| Did you feel guilty? | 1 | 2 | 3 |
| Did you feel like you hated yourself? | 1 | 2 | 3 |

| | | | |
|--|---|---|---|
| Did you think that you were a bad and worthless person? | 1 | 2 | 3 |
| Did you feel you had to punish yourself for something you had done? | 1 | 2 | 3 |

Drug Dependence Questionnaire

The following questions concern information about your possible involvement with drugs, NOT including alcoholic beverages, during the past 12 months.

**** First, please circle the category of drugs that you have used in the past 12 months.**

All information will be kept confidential.

| | |
|--|-------------------------|
| Cannabis (marijuana, hashish) | Barbiturates |
| Solvents / Petrol | Cocaine |
| Sleeping Pills / Tranquillizers (eg. Valium) | Stimulants (eg. speed) |
| Hallucinogens (eg. LSD) | Narcotics (eg. heroin). |
| Antidepressants | Other: |

Please circle yes or no for the following questions. In the statements, drug abuse refers to (1) the use of prescribed or over the counter drugs in excess of the directions, and (2) any non-medical use of drugs EXCLUDING YOUR CURRENT OVERDOSE. Remember that the questions DO NOT include alcoholic beverages. If you have difficulty with a statement then choose the response that is mostly right.

These questions refer to the past 12 months.

- | | | |
|---|-----|----|
| 1. Have you used drugs other than those prescribed for medical reasons? | Yes | No |
| 2. Do you abuse more than one drug at a time? | Yes | No |
| 3. Do you always have trouble stopping your use of drugs when you want to? | Yes | No |
| 4. Have you had "blackouts" or "flashbacks" as a result of drug use? | Yes | No |
| 5. Do you ever feel bad or guilty about your drug use? | Yes | No |
| 6. Does your partner (or parents) ever complain about your involvement with drugs? | Yes | No |
| 7. Have you neglected your family because of your use of drugs? | Yes | No |
| 8. Have you engaged in illegal activities in order to obtain drugs? | Yes | No |
| 9. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs? | Yes | No |
| 10. Have you had medical problems because of drug use? (eg. memory loss, hepatitis, fits, bleeding, etc.) | Yes | No |

Appendix B

Information sheet for experimental and control participants and consent forms

MONASH MEDICAL CENTRE
INFORMATION SHEET

Cognitive Factors Associated with Intentional Self-poisoning
Ms. Carolyn Driscoll, Mr. Tony Catanese & Dr. Patricia Miach

The purpose of this study is to learn more about why people take intentional overdoses of tablets so that psychological treatments and management by health professionals can be improved. To participate, you must be able to remember taking the overdose and have regular contact with a GP/therapist. Participation does not involve any psychological treatment and may not be of direct benefit to yourself. However, it provides an opportunity to discuss your overdose in a nonjudgmental situation and perhaps to better understand your behaviour.

As a participant in this study, you will be asked to answer questions relating to your overdose, any psychiatric history, you and your family's history of suicidal behaviour, your drug and alcohol use, and how you think and deal with problem situations. You may decline to answer any of the questions you are not comfortable discussing. Some people may find answering questions about their overdose distressing. If this occurs, every effort will be made to deal with this distress and, if necessary, the research ceased, and your therapist/GP contacted.

Ten questionnaires will be administered which are usually completed over 2 one hour sessions conducted at the hospital. However, your comfort is most important and we can stop and start as you wish. Travel expenses up to \$10 will be covered by the investigators.

Participation in this study is entirely voluntary and you may withdraw from this study at any time by stating that you wish to do so. Neither declining nor withdrawal will affect any treatment you are currently undergoing or future treatments. The information that you provide will only be identifiable by a number and will not have your name on it. The information will be kept secure and confidential at all times.

Your results from this study can be provided to your therapist at your request. The study is being undertaken as part of a PhD and aggregate results of the study may be published in a scientific journal although no individual participant will be identified. This project has approval from the Monash Medical Centre Research and Ethics Committee. If you have any ethical concerns about this research you can contact the Administrative Officer of the Southern Health Care Network Human Research & Ethics Committees - Fay Jones by phoning 95942434. If you have any questions or concerns about the study please contact **Carolyn Driscoll *******.

MONASH MEDICAL CENTRE
INFORMATION SHEET - Control Participants
Cognitive Factors Associated with Intentional Self-poisoning
Ms. Carolyn Driscoll, Mr. Tony Catanese & Dr. Patricia Miach

The purpose of this study is to learn more about why people take intentional overdoses of tablets so that treatments and management by health professionals can be improved. To participate in this study as a control participant, you must not have attempted suicide or deliberately harmed yourself in the past, and not received treatment for mental illness. If you decide to participate in this study, you will be asked to answer questions about any history of mental illness, family history of suicide and your drug and alcohol consumption. In addition, you will be asked questions about how you think, feel, and deal with problem situations. You may decline to answer any of the questions you are not comfortable discussing.

The study is usually conducted over a single one hour sessions. Participation in this study is entirely voluntary and you may withdraw from this study at any time by stating that you wish to do so. The information that you provide will only be identifiable by a number and it will be kept secure and confidential at all times. Travel expenses up to \$10 will be covered by the investigators.

This study is being undertaken as part of a PhD and the aggregate results of the study may be published in a scientific journal although no individual participant will be identified. This project has approval from the Monash Medical Centre Research. If you have any ethical concerns about this research you can contact the Administrative Officer of the Southern Health Care Network Human Research & Ethics Committees - Fay Jones by phoning 95942434. If you have any questions or concerns about the study please contact **Carolyn Driscoll *******.

MONASH MEDICAL CENTRE
PARTICIPANT CONSENT FORM

I, of
.....

have been asked to participate in the research study entitled:
Cognitive factors associated with an intentional overdose.
being conducted by:
Carolyn Driscoll, Tony Catanese, & Dr. Patricia Miach

I give my consent by signing this form on the understanding that the research study will be carried out in a manner conforming with the principles set out by the National Health and Medical Research Council, and further that:

1. I understand the general purposes, methods, demands and benefits and possible risks, inconveniences and discomforts of the study as outlined in the 'Subject Information Sheet' that has been given to me.
2. My participation in the research study is voluntary, and that I am free to withdraw at any time, and will still receive appropriate treatment for my condition, as will be the case if I do not volunteer to enter the study.
3. The confidentiality of my medical history will be safeguarded.
4. I have been given the opportunity to have a member of my family or a friend present while the project was explained.
5. I have been given the opportunity to ask questions in relation to the research study, and I have received all the information and explanations I have requested.

Signature: Date:

Witness: I, of
.....
as an independent witness, confirm that the aims and procedures of the study and any risks involved have been explained to the person consenting, whose signatures I witness. In my opinion, he/she is acting rationally and voluntarily.

Signature: Date:

Investigator: I,
have fully explained the aims, risks and procedures of the above named study to the person named herein.

Signature: Date:

The Melbourne Clinic
INFORMATION SHEET
Cognitive Factors Associated with Intentional Self-poisoning
Ms. Carolyn Driscoll & Professor Isaac Schweitzer

The purpose of this study is to learn more about why people take intentional overdoses of tablets so that psychological treatments and management by health professionals can be improved. To participate, you must be able to remember taking the overdose. Participation does not involve any psychological treatment and may not be of direct benefit to yourself. However, it provides an opportunity to discuss your overdose in a nonjudgmental situation and perhaps to better understand your behaviour.

As a participant in this study, you will be asked to answer questions relating to your overdose, any psychiatric history, you and your family's history of suicidal behaviour, your drug and alcohol use, and how you think and deal with problem situations. You may decline to answer any of the questions you are not comfortable discussing. Some people may find answering questions about their overdose distressing. If this occurs, every effort will be made to deal with this distress and, if necessary, the research ceased and staff informed.

Ten questionnaires will be administered which are usually completed over 2 one hour sessions conducted at the clinic. However, your comfort is most important and we can stop and start as you wish.

Participation in this study is voluntary and you may withdraw from this study at any time by stating that you wish to do so. Neither declining nor withdrawal will affect any treatment you are currently undergoing or future treatments. The information that you provide will only be identifiable by a number and will not have your name on it. The information will be kept secure and confidential at all times.

The study is being undertaken as part of a PhD and aggregate results of the study may be published in a scientific journal although no individual participant will be identified. This project has approval from The Melbourne Clinic Research Ethics Committee. If you have any questions or concerns about the study please contact **Carolyn Driscoll - ******* - or Professor Isaac Schweitzer at The Melbourne Clinic.

**THE MELBOURNE CLINIC
CONSENT FORM
FOR INVOLVEMENT OF PARTICIPANTS IN MEDICAL RESEARCH**

I,.....
(Name of participant)
agree to participate in a research project entitled
Cognitive factors associated with intentional self-poisoning
being conducted by Carolyn Driscoll and Professor Isaac Schweitzer.

My agreement is based on the understanding that:

1. My involvement entails answering questions about my overdose, psychiatric history, family history of suicidal behaviour, drug and alcohol use, symptoms prior to the overdose, and how I think and deal with problem situations.
2. The following risks, discomforts and inconveniences have been explained to me:
 - Participation may require up to two hours of my time
 - Some questions may be upsetting to answer but I may chose not to answer questions with which I am not comfortable.
3. I have read the attached Information Sheet and understand the general purposes, methods, and demands of the project.
4. I understand that the project may not be of direct benefit to me.
5. I can withdraw from the project at any time without my further therapy being affected in any way.
6. I am satisfied with the explanation given in relation to the project in so far as it affects me.
7. My consent to participate in this project is given freely.
8. I have been informed that the information I provide will be confidential. This consent form has been read to and explained to the participant and/or their guardian (where applicable) and I believe that adequate information has been given on the project.

SIGNEDDATE
(Participant)

SIGNEDDATE
(Researcher)

INDEPENDENT WITNESS: I believe that consent has been freely given.
SIGNEDDATE

Name of Witness (block letters).....

Address of Witness (block letters).....

Appendix C

Means and standard deviations for the Brief Symptom Inventory

Table C1

Means and standard deviations for Brief Symptom Inventory for the three groups

| Scale | Control (n=30) | Group First time (n=28) | Repeat (n=31) |
|----------------------------|--------------------|-------------------------------|------------------|
| Somatization* | | | |
| <i>M</i> | 48.67 _a | 61.39 | 65.69 |
| <i>SD</i> | 7.61 | 9.85 | 11.27 |
| Obsessive-compulsive* | | | |
| <i>M</i> | 49.30 _a | 65.89 | 72.32 |
| <i>SD</i> | 12.73 | 11.44 | 7.37 |
| Interpersonal sensitivity* | | | |
| <i>M</i> | 50.03 _a | 66.52 _b | 73.42 |
| <i>SD</i> | 9.96 | 8.30 | 7.97 |
| Depression* | | | |
| <i>M</i> | 49.30 _a | 73.86 | 76.90 |
| <i>SD</i> | 7.16 | 5.58 | 3.27 |
| Anxiety* | | | |
| <i>M</i> | 49.70 _a | 68.23 | 72.65 |
| <i>SD</i> | 8.20 | 8.64 | 6.57 |
| Hostility* | | | |
| <i>M</i> | 50.65 _a | 65.25 | 70.03 |
| <i>SD</i> | 8.84 | 10.35 | 10.01 |
| Phobic Anxiety* | | | |
| <i>M</i> | 47.63 _a | 63.48 _b | 71.10 |
| <i>SD</i> | 5.56 | 9.54 | 9.64 |
| Paranoid ideation* | | | |
| <i>M</i> | 49.92 _a | 63.14 _b | 71.32 |
| <i>SD</i> | 7.18 | 12.45 | 6.64 |
| Psychoticism* | | | |
| <i>M</i> | 51.63 _a | 70.71 | 74.27 |
| <i>SD</i> | 7.76 | 8.20 | 7.19 |
| Global symptom index* | | | |
| <i>M</i> | 50.27 _a | 70.98 _b | 76.87 |
| <i>SD</i> | 7.68 | 7.62 | 5.51 |
| Positive symptom total* | | | |
| <i>M</i> | 49.57 _a | 68.54 | 72.68 |
| <i>SD</i> | 7.50 | 6.89 | 6.36 |
| Positive symptom distress* | | | |
| <i>M</i> | 52.05 _a | 69.13 _b | 75.27 |
| <i>SD</i> | 9.39 | 6.74 | 4.88 |

* $p < .01$

a = control group significantly lower than the first time and repeat groups

b = first time group significantly lower than the repeat group

Appendix D

**Means and standard deviations for the Coping Strategies Inventory, Coping
Resources Inventory and the Problem Solving Inventory**

Table D1
Means and standard deviations for Coping Strategies Inventory primary scales for the three groups

| Scale | Group | | |
|--------------------------|--------------------|----------------------|------------------|
| | Control (n=30) | First time (n=28) | Repeat (n=31) |
| Problem solving* | | | |
| <i>M</i> | 31.83 _a | 21.93 | 23.71 |
| <i>SD</i> | 8.44 | 7.57 | 10.21 |
| Cognitive restructuring* | | | |
| <i>M</i> | 32.33 _a | 20.61 | 18.10 |
| <i>SD</i> | 6.43 | 8.16 | 9.37 |
| Emotional expression* | | | |
| <i>M</i> | 22.93 | 25.86 | 26.45 |
| <i>SD</i> | 7.97 | 8.49 | 9.88 |
| Social support* | | | |
| <i>M</i> | 29.40 _a | 22.75 | 19.39 |
| <i>SD</i> | 9.76 | 9.01 | 7.93 |
| Problem avoidance* | | | |
| <i>M</i> | 16.53 _a | 20.61 | 21.26 |
| <i>SD</i> | 4.27 | 6.23 | 6.94 |
| Wishful thinking* | | | |
| <i>M</i> | 19.77 _a | 31.14 | 31.55 |
| <i>SD</i> | 7.58 | 7.99 | 9.31 |
| Self-criticism* | | | |
| <i>M</i> | 14.47 _a | 28.25 | 29.42 |
| <i>SD</i> | 9.05 | 11.92 | 10.45 |
| Social withdrawal* | | | |
| <i>M</i> | 13.43 _a | 29.14 | 32.26 |
| <i>SD</i> | 5.81 | 9.52 | 9.87 |

**p* < .01

a = control group scored significantly differently to the first time and repeat groups

Table D2
Means and standard deviations for the secondary and tertiary scales of the Coping Strategies Inventory for the three groups

| Scale | Group | | |
|--------------------------|---------------------|----------------------|------------------|
| | Control (n=30) | First time (n=28) | Repeat (n=31) |
| Problem engagement* | | | |
| <i>M</i> | 64.17 _a | 42.54 | 41.81 |
| <i>SD</i> | 12.95 | 13.19 | 17.42 |
| Emotional engagement | | | |
| <i>M</i> | 52.33 | 48.61 | 45.84 |
| <i>SD</i> | 15.88 | 14.99 | 14.57 |
| Problem disengagement* | | | |
| <i>M</i> | 36.30 _a | 51.75 | 52.81 |
| <i>SD</i> | 8.90 | 11.87 | 13.10 |
| Emotional disengagement* | | | |
| <i>M</i> | 27.90 _a | 57.39 | 61.68 |
| <i>SD</i> | 10.76 | 18.92 | 16.73 |
| Engagement* | | | |
| <i>M</i> | 116.50 _a | 91.14 | 87.65 |
| <i>SD</i> | 24.07 | 20.89 | 24.20 |
| Disengagement* | | | |
| <i>M</i> | 64.20 _a | 109.14 | 114.48 |
| <i>SD</i> | 15.28 | 26.61 | 24.37 |

* $p < .01$
a = control group scored significantly differently to the first time and repeat groups

Table D3

Means and standard deviations for Coping Resources Inventory score and each scale for the three groups

| CRI scale | Group | | |
|------------------------------------|----------------------------|-------------------------------|---------------------------|
| | Control (<i>n</i> =30) | First time (<i>n</i> =28) | Repeat (<i>n</i> =31) |
| Total resources* | | | |
| <i>M</i> | 56.10 _a | 37.89 | 32.61 |
| <i>SD</i> | 8.06 | 11.29 | 19.92 |
| Emotional resources* | | | |
| <i>M</i> | 56.60 _a | 41.25 _b | 34.39 |
| <i>SD</i> | 9.66 | 10.19 | 9.75 |
| Spiritual/philosophical resources* | | | |
| <i>M</i> | 49.50 _a | 37.86 | 37.00 |
| <i>SD</i> | 8.48 | 11.19 | 9.00 |
| Physical resources* | | | |
| <i>M</i> | 51.67 _a | 43.68 | 38.84 |
| <i>SD</i> | 10.59 | 10.09 | 9.21 |
| Cognitive resources* | | | |
| <i>M</i> | 57.00 _a | 35.00 _b | 26.16 |
| <i>SD</i> | 8.23 | 11.60 | 11.65 |
| Social resources* | | | |
| <i>M</i> | 57.97 _a | 43.57 _b | 36.45 |
| <i>SD</i> | 8.11 | 12.63 | 11.14 |

* $p < .01$

a = control group scored significantly higher than the first time and repeat groups

b = first time group scored significantly higher than the repeat group

Table D4
Means and standard deviations for Problem Solving Inventory and subscales for the three groups

| Scale | Group | | |
|-------------------------|----------------------------|-------------------------------|---------------------------|
| | Control (<i>n</i> =30) | First time (<i>n</i> =28) | Repeat (<i>n</i> =31) |
| PSI total* | | | |
| <i>M</i> | 165.57 _a | 116.96 _b | 98.32 |
| <i>SD</i> | 15.02 | 30.29 | 30.90 |
| PSI confidence* | | | |
| <i>M</i> | 59.83 _a | 43.14 | 36.06 |
| <i>SD</i> | 4.75 | 13.05 | 12.92 |
| PSI approach-avoidance* | | | |
| <i>M</i> | 80.90 _a | 60.32 | 51.77 |
| <i>SD</i> | 11.67 | 14.99 | 15.90 |
| PSI personal control* | | | |
| <i>M</i> | 24.83 _a | 13.50 | 10.26 |
| <i>SD</i> | 4.36 | 6.13 | 4.85 |

**p* < .01
a = control group scored significantly higher than the first time and repeat groups
b = first time group scored significantly higher than the repeat group

Appendix E

Visual Analogue Scales used in Chapter 8

Visual Analogue Scale

Script Type:

How did you feel:

| | | |
|---------|--|-------|
| Relaxed | | Tense |
| | | |

How did you feel:

| | | |
|---|--|--|
| Relaxed | | Anxious |
|  | |  |

[illegible]

How did you feel:

| | | | |
|--|--|--|--|
| | Unafraid | | Afraid |
| | <div style="position: relative; height: 8px; background-color: #ccc;"></div> | | <div style="position: relative; height: 8px; background-color: #ccc;"></div> |

How did you feel: Happy Sad

How did you feel: Normal | Unreal

[illegible]

How well were you able to put yourself into that scene:

How close to real life was that scene: Very Close

How much did other thoughts or images interfere with picturing that scene:

Very Much _____ Not At All

Appendix F

**Means and standard deviations for the first time and repeat groups
psychophysiological and subjective response to imagery**

Table F1
Means and standard deviations of the psychophysiological measures for each stage of the three scripts for the control, first time and repeat groups

| Self-poisoning | | | | Neutral | | | | Prescribed Medication | | | | | |
|----------------|-----------|--------|--------|---------|--------|--------|--------|-----------------------|--------|--------|--------|--------|--------|
| Scene | Appr | Incid | Cons | Scene | Appr | Incid | Cons | Scene | Appr | Incid | Cons | | |
| HR | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | 69.92 | 70.48 | 70.02 | 69.95 | 70.81 | 70.24 | 70.67 | 70.09 | | |
| | <i>SD</i> | | | 10.07 | 9.34 | 9.32 | 9.04 | 9.58 | 9.17 | 9.04 | 8.98 | | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 73.33 | 75.50 | 74.42 | 72.88 | 71.51 | 70.82 | 71.46 | 70.87 | 70.88 | 70.63 | 71.11 | 70.13 |
| | <i>SD</i> | 11.53 | 10.31 | 10.50 | 11.45 | 10.42 | 9.90 | 10.61 | 10.62 | 10.79 | 10.21 | 10.25 | 10.14 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 73.72 | 75.80 | 75.65 | 73.47 | 71.66 | 70.61 | 71.33 | 71.42 | 72.22 | 72.13 | 72.86 | 71.73 |
| | <i>SD</i> | 15.76 | 15.35 | 15.17 | 14.78 | 13.31 | 12.90 | 13.57 | 13.32 | 13.24 | 13.15 | 12.86 | 13.57 |
| SCL | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 6.78 | 6.70 | 6.75 | 6.52 | 7.55 | 7.25 | 7.21 | 6.93 | |
| | <i>SD</i> | | | | 3.84 | 3.74 | 3.80 | 3.78 | 4.47 | 4.43 | 4.61 | 4.62 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 5.98 | 6.31 | 6.00 | 5.74 | 5.95 | 5.99 | 6.24 | 6.13 | 6.68 | 6.74 | 6.30 | 6.10 |
| | <i>SD</i> | 2.58 | 3.25 | 3.14 | 3.75 | 2.74 | 2.89 | 3.10 | 3.41 | 3.16 | 3.73 | 3.48 | 3.34 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 6.59 | 6.97 | 6.64 | 6.48 | 5.55 | 5.37 | 4.67 | 5.00 | 5.87 | 5.77 | 5.39 | 5.08 |
| | <i>SD</i> | 3.78 | 3.95 | 4.14 | 4.03 | 2.79 | 2.84 | 2.79 | 2.44 | 2.69 | 2.74 | 2.73 | 2.64 |
| EMG | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 240.95 | 240.91 | 240.16 | 239.47 | 247.59 | 246.92 | 247.04 | 246.94 | |
| | <i>SD</i> | | | | 207.95 | 202.97 | 200.53 | 199.30 | 185.21 | 189.19 | 181.94 | 181.94 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 354.20 | 390.86 | 368.71 | 364.88 | 357.81 | 363.07 | 366.93 | 371.29 | 350.68 | 361.44 | 367.25 | 361.78 |
| | <i>SD</i> | 195.87 | 211.31 | 200.32 | 205.77 | 208.74 | 207.63 | 203.45 | 211.50 | 205.63 | 206.25 | 204.86 | 202.24 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 346.20 | 358.11 | 347.23 | 347.40 | 351.34 | 347.06 | 358.26 | 354.98 | 339.77 | 364.42 | 368.03 | 355.84 |
| | <i>SD</i> | 137.60 | 138.53 | 140.30 | 142.57 | 150.55 | 143.72 | 147.46 | 151.76 | 146.02 | 171.20 | 154.01 | 145.52 |
| RESP | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 16.28 | 16.19 | 16.38 | 16.42 | 16.71 | 16.54 | 16.41 | 16.41 | |
| | <i>SD</i> | | | | 4.06 | 4.15 | 3.86 | 3.80 | 4.26 | 4.26 | 3.93 | 3.93 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 14.43 | 15.53 | 14.60 | 14.57 | 15.13 | 14.90 | 15.30 | 15.23 | 16.67 | 16.13 | 16.23 | 16.10 |
| | <i>SD</i> | 3.46 | 4.74 | 3.47 | 3.99 | 3.25 | 2.66 | 3.12 | 3.13 | 5.16 | 3.90 | 4.51 | 4.51 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 18.36 | 18.89 | 19.53 | 17.81 | 17.00 | 17.56 | 17.94 | 18.17 | 18.25 | 18.33 | 19.42 | 18.39 |
| | <i>SD</i> | 5.74 | 8.92 | 9.03 | 5.67 | 5.68 | 5.75 | 6.03 | 6.30 | 7.07 | 9.09 | 11.01 | 7.84 |

Table F2
Means and standard deviations on the subjective measures for each stage of each script for the three groups

| Self-poisoning | | | | | Neutral | | | | Prescribed Medication | | | | |
|-----------------|-----------|-------|-------|-------|---------|-------|-------|-------|-----------------------|-------|-------|-------|-------|
| Scene | Appr | Incid | Cons | Scene | Appr | Incid | Cons | Scene | Appr | Incid | Cons | | |
| Relaxed-Tense | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 16.68 | 12.21 | 9.65 | 8.18 | 28.82 | 28.24 | 27.59 | 17.50 | |
| | <i>SD</i> | | | | 15.73 | 11.37 | 10.25 | 7.80 | 24.97 | 23.30 | 23.09 | 17.30 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 47.67 | 63.00 | 60.40 | 38.80 | 10.67 | 15.53 | 17.60 | 15.07 | 27.47 | 30.33 | 37.53 | 26.07 |
| | <i>SD</i> | 29.10 | 30.18 | 28.34 | 31.00 | 11.90 | 18.34 | 24.36 | 25.20 | 28.65 | 28.68 | 28.39 | 27.98 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 60.53 | 75.05 | 45.47 | 43.32 | 20.68 | 19.47 | 21.32 | 22.74 | 36.89 | 36.53 | 38.79 | 21.05 |
| | <i>SD</i> | 26.83 | 29.39 | 33.85 | 29.99 | 15.52 | 21.20 | 25.71 | 26.16 | 29.28 | 32.30 | 33.87 | 19.10 |
| Relaxed-Anxious | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 17.65 | 14.94 | 11.65 | 9.74 | 28.32 | 28.88 | 28.26 | 20.71 | |
| | <i>SD</i> | | | | 17.59 | 15.60 | 15.41 | 10.91 | 24.64 | 23.66 | 22.12 | 20.19 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 52.33 | 59.67 | 58.80 | 39.40 | 18.07 | 22.40 | 22.13 | 20.07 | 31.60 | 32.27 | 40.27 | 27.33 |
| | <i>SD</i> | 31.16 | 27.48 | 31.88 | 30.69 | 23.44 | 26.98 | 25.70 | 29.36 | 29.26 | 31.62 | 31.53 | 30.21 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 67.79 | 76.68 | 54.63 | 52.63 | 23.32 | 21.95 | 20.58 | 19.89 | 44.68 | 37.21 | 35.11 | 27.11 |
| | <i>SD</i> | 26.97 | 26.73 | 33.19 | 30.36 | 21.96 | 23.46 | 24.94 | 23.47 | 34.56 | 34.11 | 31.29 | 26.11 |
| Calm-Angry | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 10.03 | 9.65 | 7.94 | 7.38 | 20.47 | 19.32 | 20.15 | 16.62 | |
| | <i>SD</i> | | | | 10.30 | 9.65 | 7.82 | 6.35 | 17.46 | 16.63 | 18.05 | 15.16 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 47.00 | 55.73 | 54.67 | 35.27 | 7.27 | 10.27 | 13.53 | 9.40 | 25.27 | 24.93 | 27.87 | 21.67 |
| | <i>SD</i> | 34.86 | 33.80 | 32.09 | 25.53 | 7.43 | 11.23 | 14.37 | 12.89 | 22.47 | 26.42 | 30.46 | 19.15 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 55.68 | 59.42 | 45.58 | 42.37 | 12.84 | 15.74 | 16.21 | 17.84 | 27.68 | 26.37 | 22.58 | 19.63 |
| | <i>SD</i> | 28.57 | 31.65 | 30.72 | 33.73 | 12.30 | 14.09 | 18.15 | 16.63 | 26.72 | 23.69 | 23.66 | 20.20 |
| Unafraid-Afraid | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 7.47 | 8.56 | 8.56 | 8.85 | 12.06 | 10.12 | 10.50 | 9.82 | |
| | <i>SD</i> | | | | 8.48 | 9.46 | 10.10 | 9.62 | 13.80 | 10.79 | 11.42 | 10.78 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 40.20 | 46.53 | 45.40 | 43.93 | 12.07 | 14.93 | 15.87 | 13.93 | 21.93 | 17.93 | 20.73 | 22.33 |
| | <i>SD</i> | 32.05 | 30.10 | 30.02 | 30.84 | 19.55 | 19.56 | 20.94 | 20.62 | 22.45 | 19.78 | 22.15 | 26.11 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 40.63 | 48.26 | 44.00 | 45.95 | 15.95 | 14.00 | 14.79 | 16.95 | 25.00 | 26.42 | 26.86 | 23.84 |
| | <i>SD</i> | 35.33 | 35.82 | 37.49 | 34.09 | 20.65 | 12.94 | 16.17 | 17.57 | 29.91 | 28.47 | 29.49 | 22.82 |

Table F2 Continued

| Self-Poisoning | | | | | Neutral | | | | Prescribed Medication | | | | |
|------------------|-----------|-------|-------|-------|---------|-------|-------|-------|-----------------------|-------|-------|-------|-------|
| Scene | Appr | Incid | Cons | | Scene | Appr | Incid | Cons | Scene | Appr | Incid | Cons | |
| Happy-Sad | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 21.97 | 19.21 | 18.15 | 15.91 | 32.76 | 33.97 | 34.18 | 29.15 | |
| | <i>SD</i> | | | | 16.06 | 18.41 | 17.40 | 15.74 | 21.12 | 20.73 | 21.46 | 19.92 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 68.07 | 76.20 | 61.00 | 65.27 | 25.20 | 28.00 | 25.27 | 24.20 | 39.87 | 41.80 | 44.00 | 38.80 |
| | <i>SD</i> | 22.18 | 24.52 | 24.52 | 25.59 | 21.27 | 23.12 | 19.87 | 19.24 | 23.27 | 26.84 | 27.50 | 24.91 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 80.84 | 79.21 | 71.95 | 66.16 | 38.95 | 38.42 | 36.95 | 35.89 | 50.84 | 46.21 | 44.11 | 42.47 |
| | <i>SD</i> | 19.97 | 19.02 | 27.07 | 28.11 | 23.11 | 23.29 | 25.26 | 27.44 | 19.31 | 23.22 | 23.29 | 22.74 |
| Normal-Unreal | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 10.09 | 9.24 | 9.82 | 9.56 | 16.41 | 15.82 | 15.88 | 16.26 | |
| | <i>SD</i> | | | | 11.90 | 10.03 | 12.05 | 10.05 | 20.92 | 21.50 | 20.66 | 21.10 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 60.27 | 61.60 | 67.00 | 56.40 | 13.53 | 14.67 | 17.73 | 20.40 | 31.40 | 28.20 | 37.73 | 32.73 |
| | <i>SD</i> | 27.50 | 30.79 | 27.07 | 31.38 | 16.71 | 19.83 | 23.44 | 29.27 | 30.40 | 30.30 | 31.79 | 30.27 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 70.74 | 73.89 | 72.63 | 59.58 | 19.42 | 20.00 | 18.58 | 21.95 | 30.53 | 32.00 | 35.11 | 30.74 |
| | <i>SD</i> | 30.69 | 27.54 | 26.97 | 32.29 | 22.97 | 19.61 | 18.42 | 21.19 | 31.53 | 31.17 | 31.45 | 33.84 |
| Relieved-Uptight | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 40.79 | 40.65 | 39.79 | 37.82 | 53.56 | 48.85 | 43.32 | 35.29 | |
| | <i>SD</i> | | | | 15.84 | 16.52 | 16.95 | 18.12 | 18.38 | 16.02 | 23.46 | 21.99 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 48.33 | 66.33 | 45.40 | 36.87 | 33.73 | 31.07 | 38.53 | 35.40 | 52.93 | 45.33 | 39.60 | 43.13 |
| | <i>SD</i> | 32.69 | 27.19 | 25.58 | 29.06 | 27.86 | 24.48 | 28.09 | 28.31 | 24.49 | 18.89 | 23.84 | 25.32 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 80.37 | 73.21 | 50.94 | 40.32 | 43.21 | 46.95 | 47.26 | 41.21 | 56.89 | 54.63 | 45.05 | 36.95 |
| | <i>SD</i> | 21.86 | 28.90 | 32.17 | 30.13 | 24.93 | 20.82 | 20.99 | 24.42 | 25.65 | 31.05 | 27.90 | 27.88 |
| No-Interference | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 81.85 | 79.35 | 80.41 | 79.68 | 83.09 | 83.71 | 86.85 | 81.00 | |
| | <i>SD</i> | | | | 20.11 | 21.39 | 20.35 | 24.01 | 18.94 | 19.37 | 17.73 | 24.60 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 85.87 | 81.67 | 85.13 | 87.47 | 74.87 | 72.87 | 83.33 | 81.27 | 80.60 | 77.60 | 79.60 | 79.67 |
| | <i>SD</i> | 8.39 | 14.36 | 16.13 | 10.84 | 26.56 | 27.87 | 17.10 | 21.89 | 18.99 | 21.36 | 21.46 | 21.25 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 73.89 | 74.11 | 77.26 | 77.53 | 58.47 | 65.95 | 70.11 | 67.74 | 67.37 | 66.89 | 66.21 | 69.95 |
| | <i>SD</i> | 23.26 | 25.90 | 25.89 | 23.72 | 29.82 | 24.94 | 29.50 | 31.45 | 24.69 | 25.20 | 28.59 | 25.31 |

Table F2 Continued

| Self-Poisoning | | | | | Neutral | | | | Prescribed Medication | | | | |
|----------------|-----------|-------|-------|-------|---------|-------|-------|-------|-----------------------|-------|-------|-------|-------|
| Scene | Appr | Incid | Cons | | Scene | Appr | Incid | Cons | Scene | Appr | Incid | Cons | |
| Not-Clear | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 89.26 | 90.41 | 91.00 | 91.00 | 89.62 | 90.41 | 89.47 | 91.06 | |
| | <i>SD</i> | | | | 9.07 | 9.06 | 8.50 | 8.94 | 10.42 | 9.38 | 9.93 | 9.65 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 86.00 | 81.20 | 79.60 | 88.67 | 86.67 | 84.20 | 90.47 | 87.13 | 83.00 | 82.87 | 83.53 | 83.87 |
| | <i>SD</i> | 10.34 | 20.32 | 22.57 | 10.07 | 13.81 | 19.03 | 8.63 | 14.46 | 17.53 | 20.46 | 15.73 | 15.76 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 85.84 | 82.89 | 84.79 | 83.89 | 77.16 | 81.26 | 82.84 | 82.68 | 80.63 | 80.47 | 78.63 | 81.53 |
| | <i>SD</i> | 13.64 | 16.67 | 14.37 | 18.32 | 27.57 | 22.76 | 21.93 | 20.67 | 18.30 | 19.33 | 22.20 | 15.76 |
| Not-Close | | | | | | | | | | | | | |
| CONTROL | | | | | | | | | | | | | |
| | <i>M</i> | | | | 89.53 | 90.26 | 89.00 | 91.41 | 88.94 | 89.50 | 89.18 | 89.91 | |
| | <i>SD</i> | | | | 8.69 | 9.23 | 9.68 | 7.76 | 9.83 | 11.25 | 10.06 | 9.89 | |
| FIRST TIME | | | | | | | | | | | | | |
| | <i>M</i> | 85.27 | 84.53 | 81.47 | 87.93 | 88.67 | 85.47 | 88.53 | 88.27 | 86.53 | 87.40 | 88.13 | 84.93 |
| | <i>SD</i> | 15.30 | 12.26 | 21.89 | 11.06 | 13.06 | 15.58 | 13.52 | 13.77 | 9.86 | 10.15 | 8.70 | 19.62 |
| REPEAT | | | | | | | | | | | | | |
| | <i>M</i> | 85.53 | 83.42 | 81.37 | 76.16 | 83.89 | 84.84 | 87.11 | 85.21 | 83.89 | 79.95 | 83.89 | 83.58 |
| | <i>SD</i> | 13.64 | 15.41 | 32.31 | 24.66 | 17.09 | 15.22 | 15.95 | 15.12 | 14.41 | 16.23 | 11.32 | 13.75 |

Appendix G

Tables for chi-square analyses conducted in chapter 4

Non-participating/participating group comparisons

Sex

Case Processing Summary

| | Cases | | | | | |
|-----------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| sex * group - participation | 194 | 100.0% | 0 | .0% | 194 | 100.0% |

sex * group - participation Crosstabulation

| | | | group - participation | | Total |
|-------|--------|----------------|-----------------------|-----------------|-------|
| | | | participator | nonparticipator | |
| sex | female | Count | 41 | 87 | 128 |
| | | Expected Count | 38.9 | 89.1 | 128.0 |
| | male | Count | 18 | 48 | 66 |
| | | Expected Count | 20.1 | 45.9 | 66.0 |
| Total | | Count | 59 | 135 | 194 |
| | | Expected Count | 59.0 | 135.0 | 194.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square | .466 ^a | 1 | .495 | .515 | .304 |
| Continuity Correction ^a | .268 | 1 | .605 | | |
| Likelihood Ratio | .471 | 1 | .493 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | .464 | 1 | .496 | | |
| N of Valid Cases | 194 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.07.

Repetition status

Case Processing Summary

| | Cases | | | | | |
|--------------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Group-repeat * group - participation | 185 | 95.4% | 9 | 4.6% | 194 | 100.0% |

Group-repeat * group - participation Crosstabulation

| | | | group - participation | | Total |
|--------------|------------|----------------|-----------------------|-----------------|-------|
| | | | participator | nonparticipator | |
| Group-repeat | First time | Count | 28 | 51 | 79 |
| | | Expected Count | 25.2 | 53.8 | 79.0 |
| | repeat | Count | 31 | 75 | 106 |
| | | Expected Count | 33.8 | 72.2 | 106.0 |
| Total | | Count | 59 | 126 | 185 |
| | | Expected Count | 59.0 | 126.0 | 185.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square | .800 ^b | 1 | .371 | .426 | .231 |
| Continuity Correction ^a | .541 | 1 | .462 | | |
| Likelihood Ratio | .797 | 1 | .372 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | .796 | 1 | .372 | | |
| N of Valid Cases | 185 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.19.

Previous psychiatric history

Case Processing Summary

| | Cases | | | | | |
|--|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| previous psychiatric history * group - participation | 184 | 94.8% | 10 | 5.2% | 194 | 100.0% |

previous psychiatric history * group - participation Crosstabulation

| | | | group - participation | | Total |
|------------------------------|-----|----------------|-----------------------|-----------------|-------|
| | | | participator | nonparticipator | |
| previous psychiatric history | yes | Count | 55 | 70 | 125 |
| | | Expected Count | 40.1 | 84.9 | 125.0 |
| | no | Count | 4 | 55 | 59 |
| | | Expected Count | 18.9 | 40.1 | 59.0 |
| Total | | Count | 59 | 125 | 184 |
| | | Expected Count | 59.0 | 125.0 | 184.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|---------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | 25.491 ^a | 1 | .000 | .000 | .000 |
| Continuity Correction ^a | 23.810 | 1 | .000 | | |
| Likelihood Ratio | 30.134 | 1 | .000 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 25.352 | 1 | .000 | | |
| N of Valid Cases | 184 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.92.

Axis I diagnosis

Case Processing Summary

| | Cases | | | | | |
|---|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| axis 1 recoded * group - participation | 160 | 82.5% | 34 | 17.5% | 194 | 100.0% |

axis 1 recoded * group - participation Crosstabulation

| | | | group - participation | | Total |
|----------------|---------------------|----------------|-----------------------|-----------------|-------|
| | | | participator | nonparticipator | |
| axis 1 recoded | mood disorder | Count | 28 | 39 | 67 |
| | | Expected Count | 22.6 | 44.4 | 67.0 |
| | adjustment disorder | Count | 24 | 45 | 69 |
| | | Expected Count | 23.3 | 45.7 | 69.0 |
| | crisis | Count | 0 | 10 | 10 |
| | | Expected Count | 3.4 | 6.6 | 10.0 |
| | other | Count | 2 | 12 | 14 |
| | | Expected Count | 4.7 | 9.3 | 14.0 |
| | Total | Count | 54 | 106 | 160 |
| | | Expected Count | 54.0 | 106.0 | 160.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---------------------------------|--------------------|----|--------------------------|
| Pearson Chi-Square | 9.437 ^a | 3 | .024 |
| Likelihood Ratio | 12.885 | 3 | .005 |
| Linear-by-Linear Association | 7.310 | 1 | .007 |
| N of Valid Cases | 160 | | |

- a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.38.

Axis II diagnosis

Case Processing Summary

| | Cases | | | | | |
|--|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| axis II recoded * group - participation | 74 | 38.1% | 120 | 61.9% | 194 | 100.0% |

axis II recoded * group - participation Crosstabulation

| | | | group - participation | | Total |
|-----------------|------------|----------------|-----------------------|-----------------|-------|
| | | | participator | nonparticipator | |
| axis II recoded | borderline | Count | 9 | 25 | 34 |
| | | Expected Count | 9.6 | 24.4 | 34.0 |
| | dependent | Count | 5 | 9 | 14 |
| | | Expected Count | 4.0 | 10.0 | 14.0 |
| | other | Count | 3 | 14 | 17 |
| | | Expected Count | 4.8 | 12.2 | 17.0 |
| | cluster B | Count | 4 | 5 | 9 |
| | | Expected Count | 2.6 | 6.4 | 9.0 |
| | Total | Count | 21 | 53 | 74 |
| | | Expected Count | 21.0 | 53.0 | 74.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|--------------------|----|-----------------------|
| Pearson Chi-Square | 2.538 ^a | 3 | .469 |
| Likelihood Ratio | 2.524 | 3 | .471 |
| Linear-by-Linear Association | .371 | 1 | .542 |
| N of Valid Cases | 74 | | |

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 2.55.

First time/repeat/control group comparisons

Sex

Case Processing Summary

| | Cases | | | | | |
|-------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| sex * Group | 89 | 100.0% | 0 | .0% | 89 | 100.0% |

sex * Group Crosstabulation

| | | | Group | | | Total |
|-------|--------|----------------|------------|--------|---------|-------|
| | | | first time | repeat | control | |
| sex | female | Count | 18 | 23 | 20 | 61 |
| | | Expected Count | 19.2 | 21.2 | 20.6 | 61.0 |
| | male | Count | 10 | 8 | 10 | 28 |
| | | Expected Count | 8.8 | 9.8 | 9.4 | 28.0 |
| Total | | Count | 28 | 31 | 30 | 89 |
| | | Expected Count | 28.0 | 31.0 | 30.0 | 89.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---------------------------------|-------------------|----|--------------------------|
| Pearson Chi-Square | .743 ^a | 2 | .690 |
| Likelihood Ratio | .755 | 2 | .686 |
| Linear-by-Linear Association | .031 | 1 | .860 |
| N of Valid Cases | 89 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.81.

Marital status

marital recoded * Group Crosstabulation

| | | | Group | | | Total |
|--------------------|------------------------|----------------|------------|--------|---------|-------|
| | | | first time | repeat | control | |
| marital recoded | single | Count | 13 | 12 | 12 | 37 |
| | | Expected Count | 11.6 | 12.9 | 12.5 | 37.0 |
| | married | Count | 11 | 11 | 10 | 32 |
| | | Expected Count | 10.1 | 11.1 | 10.8 | 32.0 |
| | separated from partner | Count | 4 | 8 | 8 | 20 |
| | | Expected Count | 6.3 | 7.0 | 6.7 | 20.0 |
| Total | Count | 28 | 31 | 30 | 89 | |
| | Expected Count | 28.0 | 31.0 | 30.0 | 89.0 | |

Case Processing Summary

| | Cases | | | | | |
|-------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| marital recoded * Group | 89 | 100.0% | 0 | .0% | 89 | 100.0% |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|--------------------|----|-----------------------|
| Pearson Chi-Square | 1.607 ^a | 4 | .808 |
| Likelihood Ratio | 1.706 | 4 | .790 |
| Linear-by-Linear Association | .818 | 1 | .366 |
| N of Valid Cases | 89 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.29.

Education

Case Processing Summary

| | Cases | | | | | |
|-------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| education * Group | 89 | 100.0% | 0 | .0% | 89 | 100.0% |

education * Group Crosstabulation

| | | | Group | | | Total |
|-----------|-------------|----------------|------------|--------|---------|-------|
| | | | first time | repeat | control | |
| education | secondary | Count | 9 | 16 | 8 | 33 |
| | | Expected Count | 10.4 | 11.5 | 11.1 | 33.0 |
| | year 12/HSC | Count | 7 | 6 | 9 | 22 |
| | | Expected Count | 6.9 | 7.7 | 7.4 | 22.0 |
| | other | Count | 2 | 3 | 6 | 11 |
| | | Expected Count | 3.5 | 3.8 | 3.7 | 11.0 |
| | University | Count | 10 | 6 | 7 | 23 |
| | | Expected Count | 7.2 | 8.0 | 7.8 | 23.0 |
| | Total | Count | 28 | 31 | 30 | 89 |
| | | Expected Count | 28.0 | 31.0 | 30.0 | 89.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---------------------------------|--------------------|----|--------------------------|
| Pearson Chi-Square | 7.375 ^a | 6 | .288 |
| Likelihood Ratio | 7.132 | 6 | .309 |
| Linear-by-Linear Association | .028 | 1 | .868 |
| N of Valid Cases | 89 | | |

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 3.46.

Ethnic background

Case Processing Summary

| | Cases | | | | | |
|-------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| ethnicity * Group | 89 | 100.0% | 0 | .0% | 89 | 100.0% |

ethnicity * Group Crosstabulation

| | | | Group | | | Total |
|-----------|------------|----------------|------------|--------|---------|-------|
| | | | first time | repeat | control | |
| ethnicity | Anglosaxon | Count | 27 | 27 | 27 | 81 |
| | | Expected Count | 25.5 | 28.2 | 27.3 | 81.0 |
| | other | Count | 1 | 4 | 3 | 8 |
| | | Expected Count | 2.5 | 2.8 | 2.7 | 8.0 |
| Total | | Count | 28 | 31 | 30 | 89 |
| | | Expected Count | 28.0 | 31.0 | 30.0 | 89.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---------------------------------|--------------------|----|--------------------------|
| Pearson Chi-Square | 1.623 ^a | 2 | .444 |
| Likelihood Ratio | 1.831 | 2 | .400 |
| Linear-by-Linear Association | .691 | 1 | .406 |
| N of Valid Cases | 89 | | |

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 2.52.

Employment status

Case Processing Summary

| | Cases | | | | | |
|------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| employment status * Group | 89 | 100.0% | 0 | .0% | 89 | 100.0% |

employment status * Group Crosstabulation

| | | | Group | | | Total |
|-------------------|----------------|----------------|------------|--------|---------|-------|
| | | | first time | repeat | control | |
| employment status | employed | Count | 13 | 9 | 25 | 47 |
| | | Expected Count | 14.8 | 16.4 | 15.8 | 47.0 |
| | unemployed | Count | 8 | 13 | 0 | 21 |
| | | Expected Count | 6.6 | 7.3 | 7.1 | 21.0 |
| | other | Count | 7 | 9 | 5 | 21 |
| | | Expected Count | 6.6 | 7.3 | 7.1 | 21.0 |
| Total | Count | 28 | 31 | 30 | 89 | |
| | Expected Count | 28.0 | 31.0 | 30.0 | 89.0 | |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square | 21.641 ^a | 4 | .000 |
| Likelihood Ratio | 27.770 | 4 | .000 |
| Linear-by-Linear Association | 4.524 | 1 | .033 |
| N of Valid Cases | 89 | | |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.61.

Current Axis I diagnosis

Case Processing Summary

| | Cases | | | | | |
|----------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| diagnosed mental illness * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

diagnosed mental illness * Group Crosstabulation

| | | | Group | | Total |
|--------------------------|-----|----------------|------------|--------|-------|
| | | | first time | repeat | |
| diagnosed mental illness | yes | Count | 26 | 29 | 55 |
| | | Expected Count | 26.1 | 28.9 | 55.0 |
| | no | Count | 2 | 2 | 4 |
| | | Expected Count | 1.9 | 2.1 | 4.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | .011 ^a | 1 | .916 | 1.000 | .654 |
| Continuity Correction ^a | .000 | 1 | 1.000 | | |
| Likelihood Ratio | .011 | 1 | .916 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | .011 | 1 | .917 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.90.

Current Axis II diagnosis

Case Processing Summary

| | Cases | | | | | |
|--------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| axis 2 diagnosis * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

axis 2 diagnosis * Group Crosstabulation

| | | | Group | | Total |
|------------------|-----|----------------|------------|--------|-------|
| | | | first time | repeat | |
| axis 2 diagnosis | yes | Count | 8 | 13 | 21 |
| | | Expected Count | 10.0 | 11.0 | 21.0 |
| | no | Count | 20 | 18 | 38 |
| | | Expected Count | 18.0 | 20.0 | 38.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | 1.146 ^a | 1 | .284 | .415 | .213 |
| Continuity Correction ^a | .637 | 1 | .425 | | |
| Likelihood Ratio | 1.155 | 1 | .283 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 1.127 | 1 | .288 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.97.

Comorbid diagnoses

Case Processing Summary

| | Cases | | | | | |
|----------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| comorbid diagnoses * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

comorbid diagnoses * Group Crosstabulation

| | | | Group | | Total |
|--------------------|----------------|----------------|------------|--------|-------|
| | | | first time | repeat | |
| comorbid diagnoses | yes | Count | 5 | 12 | 17 |
| | | Expected Count | 8.1 | 8.9 | 17.0 |
| | no | Count | 23 | 19 | 42 |
| | | Expected Count | 19.9 | 22.1 | 42.0 |
| Total | Count | | 28 | 31 | 59 |
| | Expected Count | | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square | 3.119 ^a | 1 | .077 | .092 | .069 |
| Continuity Correction ^a | 2.185 | 1 | .139 | | |
| Likelihood Ratio | 3.199 | 1 | .074 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 3.066 | 1 | .080 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.07.

Took minor tranquilliser medication?

Case Processing Summary

| | Cases | | | | | |
|----------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| minor tranquiliser * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

minor tranquiliser * Group Crosstabulation

| | | | Group | | Total |
|--------------------|-----|----------------|------------|--------|-------|
| | | | first time | repeat | |
| minor tranquiliser | yes | Count | 14 | 16 | 30 |
| | | Expected Count | 14.2 | 15.8 | 30.0 |
| | no | Count | 14 | 15 | 29 |
| | | Expected Count | 13.8 | 15.2 | 29.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | .015 ^a | 1 | .902 | 1.000 | .554 |
| Continuity Correction ^a | .000 | 1 | 1.000 | | |
| Likelihood Ratio | .015 | 1 | .902 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | .015 | 1 | .902 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.76.

Took major tranquilliser medication?

Case Processing Summary

| | Cases | | | | | |
|--------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| major tranquilliser * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

major tranquilliser * Group Crosstabulation

| | | | Group | | Total |
|---------------------|-------|----------------|------------|--------|-------|
| | | | first time | repeat | |
| major tranquilliser | 1 | Count | 0 | 7 | 7 |
| | | Expected Count | 3.3 | 3.7 | 7.0 |
| | 2 | Count | 28 | 24 | 52 |
| | | Expected Count | 24.7 | 27.3 | 52.0 |
| | Total | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | 7.174 ^a | 1 | .007 | .011 | .008 |
| Continuity Correction ^a | 5.177 | 1 | .023 | | |
| Likelihood Ratio | 9.859 | 1 | .002 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 7.052 | 1 | .008 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.32.

Took antidepressant medication?

Case Processing Summary

| | Cases | | | | | |
|------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| antidepressant * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

antidepressant * Group Crosstabulation

| | | | Group | | Total |
|----------------|-----|----------------|------------|--------|-------|
| | | | first time | repeat | |
| antidepressant | yes | Count | 0 | 8 | 8 |
| | | Expected Count | 3.8 | 4.2 | 8.0 |
| | no | Count | 28 | 23 | 51 |
| | | Expected Count | 24.2 | 26.8 | 51.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | 8.359 ^a | 1 | .004 | .005 | .004 |
| Continuity Correction ^a | 6.302 | 1 | .012 | | |
| Likelihood Ratio | 11.429 | 1 | .001 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 8.218 | 1 | .004 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.80.

Took salicylic medication?

Salicylics * Group Crosstabulation

| | | | Group | | Total |
|------------|-----|----------------|------------|--------|-------|
| | | | first time | repeat | |
| Salicylics | yes | Count | 9 | 8 | 17 |
| | | Expected Count | 8.1 | 8.9 | 17.0 |
| | no | Count | 19 | 23 | 42 |
| | | Expected Count | 19.9 | 22.1 | 42.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Case Processing Summary

| | Cases | | | | | |
|--------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Salicylics * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | .288 ^a | 1 | .592 | .774 | .401 |
| Continuity Correction ^a | .062 | 1 | .804 | | |
| Likelihood Ratio | .288 | 1 | .592 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | .283 | 1 | .595 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.07.

Alcohol with the overdose?

Case Processing Summary

| | Cases | | | | | |
|-------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| alcohol with OD * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

alcohol with OD * Group Crosstabulation

| | | | Group | | Total |
|-----------------|-----|----------------|------------|--------|-------|
| | | | first time | repeat | |
| alcohol with OD | yes | Count | 7 | 17 | 24 |
| | | Expected Count | 11.4 | 12.6 | 24.0 |
| | no | Count | 21 | 14 | 35 |
| | | Expected Count | 16.6 | 18.4 | 35.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|--------------------|----|--------------------------|-------------------------|-------------------------|
| Pearson Chi-Square | 5.428 ^a | 1 | .020 | .033 | .019 |
| Continuity Correction ^a | 4.262 | 1 | .039 | | |
| Likelihood Ratio | 5.553 | 1 | .018 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | 5.336 | 1 | .021 | | |
| N of Valid Cases | 59 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.39.

Number of types of medications

Case Processing Summary

| | Cases | | | | | |
|---|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| number of meds -3 categories * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

number of meds -3 categories * Group Crosstabulation

| | | | Group | | Total |
|------------------------------|----------------|----------------|------------|--------|-------|
| | | | first time | repeat | |
| number of meds -3 categories | 1 | Count | 20 | 9 | 29 |
| | | Expected Count | 13.8 | 15.2 | 29.0 |
| | 2 | Count | 5 | 14 | 19 |
| | | Expected Count | 9.0 | 10.0 | 19.0 |
| | 3 | Count | 3 | 8 | 11 |
| | | Expected Count | 5.2 | 5.8 | 11.0 |
| Total | Count | 28 | 31 | 59 | |
| | Expected Count | 28.0 | 31.0 | 59.0 | |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|---------------------------------|---------------------|----|--------------------------|
| Pearson Chi-Square | 10.583 ^a | 2 | .005 |
| Likelihood Ratio | 10.923 | 2 | .004 |
| Linear-by-Linear Association | 8.172 | 1 | .004 |
| N of Valid Cases | 59 | | |

- a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.22.

Impulsiveness of overdose

Case Processing Summary

| | Cases | | | | | |
|--------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| impulsiveness recoded2 * Group | 59 | 100.0% | 0 | .0% | 59 | 100.0% |

impulsiveness recoded2 * Group Crosstabulation

| | | | Group | | Total |
|---------------------------|-----------|----------------|------------|--------|-------|
| | | | first time | repeat | |
| impulsiveness recoded2 | impulsive | Count | 22 | 21 | 43 |
| | | Expected Count | 20.4 | 22.6 | 43.0 |
| | 1hr-1day | Count | 5 | 1 | 6 |
| | | Expected Count | 2.8 | 3.2 | 6.0 |
| | >1 day | Count | 1 | 9 | 10 |
| | | Expected Count | 4.7 | 5.3 | 10.0 |
| Total | | Count | 28 | 31 | 59 |
| | | Expected Count | 28.0 | 31.0 | 59.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|--------------------|----|-----------------------|
| Pearson Chi-Square | 8.961 ^a | 2 | .011 |
| Likelihood Ratio | 10.143 | 2 | .006 |
| Linear-by-Linear Association | 4.395 | 1 | .036 |
| N of Valid Cases | 59 | | |

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 2.85.

Appendix H

Tables for chi-square analyses conducted in chapter 8

First time and repeat group comparisons*

Sex

Case Processing Summary

| | Cases | | | | | |
|----------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| sex * REPEATER | 34 | 100.0% | 0 | .0% | 34 | 100.0% |

sex * REPEATER Crosstabulation

| | | | REPEATER | | Total |
|-------|--------|----------------|----------|------|-------|
| | | | 1 | 2 | |
| sex | female | Count | 10 | 10 | 20 |
| | | Expected Count | 8.8 | 11.2 | 20.0 |
| | male | Count | 5 | 9 | 14 |
| | | Expected Count | 6.2 | 7.8 | 14.0 |
| Total | | Count | 15 | 19 | 34 |
| | | Expected Count | 15.0 | 19.0 | 34.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square | .682 ^a | 1 | .409 | .495 | .319 |
| Continuity Correction ^a | .225 | 1 | .635 | | |
| Likelihood Ratio | .687 | 1 | .407 | | |
| Fisher's Exact Test | | | | | |
| Linear-by-Linear Association | .662 | 1 | .416 | | |
| N of Valid Cases | 34 | | | | |

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.18.

Marital status

Case Processing Summary

| | Cases | | | | | |
|-----------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| marital status recoded * REPEATER | 34 | 100.0% | 0 | .0% | 34 | 100.0% |

marital status recoded * REPEATER Crosstabulation

| | | | REPEATER | | Total |
|---------------------------|---------|----------------|----------|------|-------|
| | | | 1 | 2 | |
| marital status recoded | single | Count | 8 | 12 | 20 |
| | | Expected Count | 8.8 | 11.2 | 20.0 |
| | married | Count | 2 | 2 | 4 |
| | | Expected Count | 1.8 | 2.2 | 4.0 |
| | other | Count | 5 | 5 | 10 |
| | | Expected Count | 4.4 | 5.6 | 10.0 |
| Total | | Count | 15 | 19 | 34 |
| | | Expected Count | 15.0 | 19.0 | 34.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|-------------------|----|-----------------------|
| Pearson Chi-Square | .334 ^a | 2 | .846 |
| Likelihood Ratio | .334 | 2 | .846 |
| Linear-by-Linear Association | .290 | 1 | .590 |
| N of Valid Cases | 34 | | |

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.76.

Education level

Case Processing Summary

| | Cases | | | | | |
|------------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| education recoded * REPEATER | 33 | 97.1% | 1 | 2.9% | 34 | 100.0% |

education recoded * REPEATER Crosstabulation

| | | | REPEATER | | Total |
|-------------------|------------|----------------|----------|------|-------|
| | | | 1 | 2 | |
| education recoded | secondary | Count | 4 | 3 | 7 |
| | | Expected Count | 3.2 | 3.8 | 7.0 |
| | Year 12 | Count | 2 | 2 | 4 |
| | | Expected Count | 1.8 | 2.2 | 4.0 |
| | other | Count | 2 | 2 | 4 |
| | | Expected Count | 1.8 | 2.2 | 4.0 |
| | University | Count | 7 | 11 | 18 |
| | | Expected Count | 8.2 | 9.8 | 18.0 |
| | Total | | 15 | 18 | 33 |
| | | | 15.0 | 18.0 | 33.0 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|-------------------|----|-----------------------|
| Pearson Chi-Square | .765 ^a | 3 | .858 |
| Likelihood Ratio | .767 | 3 | .857 |
| Linear-by-Linear Association | .704 | 1 | .401 |
| N of Valid Cases | 33 | | |

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.82.

Alcohol with the overdose?

alcohol with OD * REPEATER Crosstabulation

| | | | REPEATER | | Total |
|-----------------|-----|----------------|----------|------|-------|
| | | | 1 | 2 | |
| alcohol with OD | yes | Count | 5 | 9 | 14 |
| | | Expected Count | 6.2 | 7.8 | 14.0 |
| | no | Count | 10 | 10 | 20 |
| | | Expected Count | 8.8 | 11.2 | 20.0 |
| Total | | Count | 15 | 19 | 34 |
| | | Expected Count | 15.0 | 19.0 | 34.0 |

Case Processing Summary

| | Cases | | | | | |
|----------------------------|-------|---------|---------|---------|-------|---------|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| alcohol with OD * REPEATER | 34 | 100.0% | 0 | .0% | 34 | 100.0% |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) |
|------------------------------------|-------------------|----|-----------------------|----------------------|----------------------|
| Pearson Chi-Square | .682 ^b | 1 | .409 | | |
| Continuity Correction ^a | .225 | 1 | .635 | | |
| Likelihood Ratio | .687 | 1 | .407 | | |
| Fisher's Exact Test | | | | .495 | .319 |
| Linear-by-Linear Association | .662 | 1 | .416 | | |
| N of Valid Cases | 34 | | | | |

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.18.

* = note that REPEATER indicates group (1 = first time, 2 = repeat)