# Predictors of adherence with follow-up subsequent to a suicide attempt

by


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# Declaration

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## Abstract

Suicide attempts are associated with an increased risk of repeat attempts, completed suicide, chronic psychiatric symptoms, and ongoing psychosocial difficulties. Data is lacking in several areas in the field of suicide prevention and it is vital that clinicians identify factors that increase treatment adherence among patients that attempt suicide.

This study aims to examine adherence rates and predictors of adherence to follow-up after a suicide attempt among the patient population of the PEU of Groote Schuur Hospital, Cape Town. Underlying the study is the hypothesis that socio-demographic factors and the nature of the suicide attempt predict adherence with follow-up subsequent to a suicide attempt.

From 20th February 2007, 100 patients at the psychiatric emergency unit (PEU) of Groote Schuur Hospital, Cape Town were assessed subsequent to a suicide attempt. Registrars stationed at the PEU extended their routine assessment to include three questionnaires. The questionnaires were adapted instruments of the World Health Organisation (WHO) Multisite Intervention Study on Suicidal Behaviours (SUPRE-MISS) and documented socio-demographic, clinical and follow-up features (WHO, 2002).

The mean age of the sample was 30 years and 67% were women. Patients were most likely to attempt suicide at home, in the evening, using readily accessible medication. Most attempts exhibited little planning with a significant number of attempts motivated by reasons other than wanting to die. Nineteen percent of patients were intoxicated with alcohol or illicit drugs at time of the attempt. One third of patients had a history of previous psychiatric contact and 20% were currently receiving psychiatric treatment. The most common diagnosis was adjustment disorder (30%) followed by major depression in 25% of patients.

Fifty one percent of patients did not adhere to follow-up. Adherence was examined in relation to socio-demographic characteristics, nature of the suicide attempt, diagnosis, current and past psychiatric treatment and type of recommended follow-up care. Each factor was found to predict treatment adherence. Patients that were older, took precautions to prevent intervention during the suicide attempt, had a diagnosis of depression, were receiving psychiatric treatment at the time of the attempt or had a history of psychiatric treatment were more likely to adhere to follow-up. Additionally, those patients that were referred to their local clinic were less likely to adhere to follow-up.

It is vital that future research and service planning examines what is effective in the management of suicide attempt patients and thereby identify strategies for shifting organisational norms, set realistic expectations for patients and streamline procedures for psychiatric care.

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1. Consent form
2. Information sheet for doctors
3. Socio-demographic questionnaire
4. Nature of suicide attempt questionnaire
5. Diagnosis and follow-up questionnaire

## List of Abbreviations

1. PEU: Psychiatric Emergency Unit
2. WHO: World Health Organisation
3. SUPRE-MISS: Multisite Intervention Study on Suicide Behaviours

# CHAPTER 1: INTRODUCTION

Chapter 1 will begin by providing a background to the research problem and reasons for conducting this study. Next, it will introduce key definitions and concepts. The chapter will conclude by providing an overview of the aims, objectives and methodology of the study.

## 1.1. Background to the research

### 1.1.1. Burden of suicide behaviour

Approximately 1 million people worldwide die by suicide every year, making it one of the leading causes of death internationally (WHO, 1996). Suicide attempts are far from innocuous and attempters are at increased risk of a range of adverse outcomes including repeat attempts, completed suicide, chronic psychiatric symptoms, and ongoing psychosocial difficulties. Studies have shown that up to 60% of patients who attempt suicide repeat the attempt at a later stage (Hawton and Fagg, 1988); the majority of repeats occurring in the first 6 months (Schmidtke et al, 1996). The risk of death among suicide attempters is 3.3 times greater than expected of the general population statistics, with suicide being the major factor contributing to the increased risk (Hawton and Fagg, 1988). Within a few years of an attempt 5-10% of patients die as a result of suicide (Nordstrom et al, 1995).

Suicide and suicide attempts are contributing increasingly to the global health burden, with an estimated value of lost productivity of $11.8 billion per year due to suicide in the United States alone (Goldsmith et al, 2002). In Cape Town, South Africa, suicide attempts, are the most common psychiatric presentation to emergency departments (Wilson et al, 2005), also place a significant burden on health care resources. Reports from the World Health Organisation (WHO) suggest that suicide is predicted to contribute to the global burden of disease to an even larger extent to in the coming decades (Mathers and Loncar, 2006).

Although suicide prevalence approximates 16 per 100,000 people per year, rates vary significantly cross-nationally, being highest in Eastern Europe and lowest in Central and South America (WHO, 2009). As with suicide, there are substantial cross-national differences in the prevalence of suicide attempts, ranging between 0.4-5.1

percent (WHO, 2009). However, Africa is severely underrepresented in suicide literature and therefore a definitive picture of suicide and suicide behaviour trends in Africa cannot easily be formed.

To compound the problem in Africa, there are numerous constraints to the development of mental health services for patients who attempt suicide, including the following: Lack of awareness amongst authorities of the magnitude of the problem, linked to the paucity of epidemiological data; non-availability of reliable information management systems, resulting in a lack of reliable data; inadequate human and financial resources; absence of, or out of date mental health policies and laws; and constant departure ("brain drain") of well trained and specialized personnel lured by financial and other incentives to Western countries. (Kigozi, 2003; Desjarlais et al, 1995).

However, international prospective clinical studies focusing on suicide attempts have provided a good deal of useful information about clinical presentation, management and outcome. Suicide prevention is increasingly recognized as a public health priority and a number of robust studies focusing on suicide attempters have been carried out. Consequently, a number of established individual and environmental risk factors for a suicide attempt are well identified but data is still lacking in several areas in the field of suicide prevention.



### 1.1.2. Adherence to follow-up

The high incidence of suicide attempts and associated difficulties suggest a real need for suicide intervention programmes to be a public health policy priority. Despite their great need for mental health intervention, suicide attempters may be not referred for aftercare following their emergency unit assessment, and a large number of those who are referred fail to attend their initial treatment session (Nordentoft et al, 2005).

Furthermore, there are only a limited number of intervention programmes for suicide attempters that are described in the literature. One of the reasons for this is that, paradoxically, patients who attempt suicide repeatedly may not be taken seriously despite the increased morbidity and mortality risk. Suicide attempts by patients with borderline personality disorder, for example, may be assessed as 'manipulative' and

can lead to a clinician underestimating risk (Kjellander et al, 1988). Another reason for this seemingly low level of interest in suicide attempt intervention programmes may be the poor adherence to follow-up by suicide attempters as mentioned above (and described further in Chapter 2: Literature Review). There is, however, evidence to suggest that follow-up psychiatric treatment after a suicide attempt has positive effects on clinical outcome (Rotheram-Borus et al, 1999). An unfortunate consequence of non-adherence to follow-up is that the patient may not then access these potentially beneficial medication and psychosocial treatments.

### 1.1.3. Unanswered questions

Adherence to treatment is a complex behaviour and who will adhere with follow-up and who will not is difficult to determine. Focus needs to lie not only on adherence rates but also on factors influencing treatment adherence itself. Being aware of these predictive factors may inform our decisions on further management of patients who attempt suicide and we may be better able to flag patients who are at risk of not attending aftercare, thereby directing available resources more appropriately. A number of fundamental unanswered questions still persist. For example: How are suicide attempts routinely managed by emergency departments? Do patients adhere to the recommended management? Are there clinically useful predictors of adherence that can inform management and follow-up of suicide attempters? Do different cultures in South Africa present differently and are there variations in adherence rates and predictors of adherence compared to international data?



## 1.2. Motivation for the research

All registrars at the University of Cape Town rotate at some stage through the psychiatric emergency unit (PEU) of Groote Schuur Hospital during their psychiatry registrar training. The PEU provides exposure to a wide array of psychiatric disorders but suicide attempts account for an estimated 18.8% of psychiatric assessments (Wilson et al, 2005). During my registrar time at the PEU, I was uncertain how best to serve this large patient population with limited resources. Since Groote Schuur Hospital is a referral hospital, I wondered if patients were reaching their aftercare centres for further treatment. This fear increased when I noticed that many of the patients presenting after a suicide attempt were repeat attempters.

To inform my management, I examined the literature on adherence rates and short-term interventions after a suicide attempt. It became apparent to me that the area of suicidology is one of remarkable research, but there are substantial gaps in knowledge. Although a study published by Moosa et al (2005), describing the characteristics of patients presenting after a suicide attempt at a Johannesburg Hospital, recommended improved mental health care at a community level to decrease repeat suicidal behaviour, it was unclear what type of community treatment works for suicide attempters or even if the treatment is adhered to. A brief search for international studies on adherence and predictors of adherence to follow-up after a suicide attempt, showed a relative paucity of research, especially in the adult population. It was evident that in order to meet the needs of the large patient group of suicide attempters, this area needed further study.

### 1.3. Research hypothesis

Socio-demographic factors and the nature of the suicide attempt predict adherence with follow-up subsequent to a suicide attempt.

### 1.4. Aim and objectives

The overall aim of this study is to document the predictors of adherence with follow-up after a suicide attempt among the patient population of the PEU of Groote Schuur Hospital, Cape Town.

There are 4 specific objectives of this study:

1. To describe the profile of patients presenting to the PEU following a suicide attempt diagnostically and socio-demographically.
2. To document the characteristics of their suicide attempts.
3. To identify which patients presented for follow-up treatment and which did not do so.
4. To compare the characteristics on initial assessment of those patients who adhered to follow-up to those who did not.

The implementation objectives of this study are:

1. To identify patients who are at high risk of non-attending follow-up centres subsequent to a suicide attempt.
2. To make recommendations for interventions targeted at improving adherence with follow-up.

## 1.5. Outline of study methodology

The study sample comprised 100 patients presenting to the PEU following a suicide attempt from the 1st February 2007. Those who were admitted into the PEU were not eligible for recruitment. During the period of study, psychiatry registrars stationed at the PEU extended their routine clinical assessment to include a socio-demographic questionnaire (appendix 4) and a questionnaire detailing the suicide attempt (appendix 5). Management of the patient was not altered. The centres to which the patients were referred to subsequent to the suicide attempts were contacted one month after presentation. Patients who did not attend follow-up and those who did attend were noted and characteristics on initial presentation compared.

## 1.6. Definitions

Historically, the field of suicidology has been fraught with longstanding difficulties and controversies in the development of a universally accepted nomenclature (O' Carroll et al, 1996). The definitions and terminology outlined in recent consensus papers are used for this study (Silverman et al, 2006; Silverman et al, 2007).

Suicide – refers to the act of intentionally ending one's own life

Nonfatal suicidal thoughts and behaviours are further classified into three categories:

Suicide ideation – refers to the thought of engaging in behaviour intended to end one's own life;

Suicide plan – formulation of a specific method through which one intends to die;

Suicide attempt – engagement in potentially self-injurious behaviour in which there is at least some intent to die.

Nonsuicidal self-injury (also known as deliberate self-harm), which refers to self-injury in which a person does not have the intent to die, is not a focus of this thesis.

# CHAPTER 2: LITERATURE REVIEW

## 2.1. Introduction

The purpose of this chapter is to provide a systematic review of the literature related to adherence and predictors of adherence to follow-up subsequent to a suicide attempt. A systemic review is a crucial method of substantiating the validity and relevance of the research question. To begin with, this chapter will describe the scope and search strategy of the literature review followed by a discussion of the methodological flaws within the available literature. Next, we review the adult and adolescent based literature on adherence and predictors of adherence to follow-up after a suicide attempt. To conclude, the identified gaps in the literature will be outlined.

## 2.2. Scope and methodology of review

### 2.2.1. Inclusion criteria

Published works that satisfy the following criteria were included:

1. The work was published between January 1980 and August 2008
2. The source was a peer-reviewed journal
3. The work considered adherence to follow-up as a focus of the study.

### 2.2.2. Exclusion criteria

The following were exclusion criteria:

1. Studies in which the study population was children under the age of 13.

Intervention studies are included in the literature review but the efficacy of the intervention study was not reviewed. A number of adolescent studies encompass parental adherence to follow-up. This literature review will consider how parental factors influence follow-up of the adolescent suicide attempter but will not be focusing on parental adherence rates or predictors of parental follow-up.

### 2.2.3. Search Strategy

The review of the literature was conducted using the following methods:

1. The literature review comprised articles that were published in peer-reviewed journals between January 1980 and August 2008.
2. A database search for relevant articles in English was conducted on PsychInfo, Medline, Science Direct, OVID, African Journals On Line and Pubmed. Details of

published works were obtained using permutations of the following keywords: "suicide attempt", "adherence", "compliance", "follow-up", "treatment", "attendance", "aftercare", "predictor".

3. A hand search was done of the table of contents of selected key journals from January 1998 to August 2008 (inclusive) to identify further relevant publications. These key journals included: *Archives of General Psychiatry, Acta Psychiatrica Scandinavia, Psychological Medicine, American Journal of Psychiatry, British Journal of Psychiatry, Journal of the American Academy of Child and Adolescent Psychiatry, Archives of Suicide Research, Suicide and Life Threatening Behaviour, Journal of Child Psychology and Psychiatry*.

4. Researchers were contacted personally if relevant articles were not available electronically.

5. The reference lists of retrieved articles were scanned for further relevant publications.



### 2.3. Results of literature search

The results of the literature search are summarised in Tables 1 (adult and mixed age studies) and 2 (adolescent studies).

One of the articles retrieved during the literature search was an invited essay by Spirito et al (2000) discussing the post-attempt course and implications for treatment of adolescent suicide attempters. The essay included a review of treatment compliance and empirical treatment trials. However, since the Spirito et al (2000) review was not systematic and focused only on adolescents, this literature review is still relevant.

#### 2.3.1. Number of studies

The number of relevant publications totalled 21. Of these, 12 are adolescent based and 9 are adult based studies. Twenty publications are a comparatively small number given the broad scope of the inclusion criteria.

#### 2.3.2. Study settings

All retrieved studies were based in the developed world, with the majority of studies based in Europe and America and one study based in Australia. A number of studies, however, identified themselves as being based in socio-economically disadvantaged communities (Rotheram-Borus et al, 1999; Piacentini et al, 1995; Trautman et al, 1993). Research interest peaked in this area of study between 1993 and 2002.

## Table 2.1. Adherence rates and predictors of adherence to follow-up: adolescent studies

| Study | Study population | Methodology | N | Analysis | Adherence measure | Adherence | Predictors | | Comment |
|---|---|---|---|---|---|---|---|---|---|
| **Adolescent Studies** | | | | | | | | | |
| Burns et al (2008) | USA – 4 private hospitals<br>Age 13-18yrs with family | Prospective analytical sub-study | 85 | Percentages, means, discrete time survival analyses, linear regression | Follow-up measured 6 monthly for 2 years | 6 months: 76.5%<br>12 months: 70.6%<br>18 months: 68.2%<br>24 months: 56.5% | PTR<br>PMI<br>MI<br>TR | +<br>-<br>+<br>- | 43% recruitment<br>Adherence:<br>Positive parent treatment perception<br>Non-adherence (medication):<br>Disruptive behaviour disorder<br>Anxiety/affective disorder |
| Hazell (2003) | NSW, Australia,<br>Age < 16yrs | Prospective analytical study | 115 | Percentages, means, frequencies, Chi-square analyses | Single session attendance | 74% at least 1 session | Age<br>Sex<br>LoH<br>FUD<br>MPx | -<br>-<br>-<br>-<br>+ | Non-adherence:<br>Multiple presenters |
| Spirito et al (2002) | RI, USA<br>Age 12-18yrs | Randomised standard care vs. intervention | 63 | Percentages, means, t-test , Chi-square, ANOVA, logistic regression | Telephonic report within 3 months of discharge. | 91-93% at least one session<br>58% intervention, 48% standard care completed treatment | MI<br>MPx<br>SB<br>H<br>Med<br>TxH | +<br>+<br>+<br>-<br>-<br>- | Non-adherence:<br>Depression, prior suicide attempts, family and service barriers |
| Granboulan et al (2001) | Paris, France<br>Post-hospitalisation<br>Age 13-18 yrs | Prospective study | 167 | Percentages, means, frequencies, multiple regression | All sessions within 3 months of discharge (telephonic self-report) | 25.5% no attendance<br>11.1% single attendance<br>32% full attendance | Age<br>Sex<br>SES<br>MI<br>QoFR | -<br>-<br>-<br>+<br>- | 83% female<br>Adherence:<br>Therapy while hospitalized, depression, anxiety, illicit drug use, attempt premeditation<br>Non-adherence:<br>Repeating school yrs |
| Rotheram-Borus et al (1999) | New York, USA<br>Female, Latin, Age 12-18yrs and mothers | Quasi-experimental-standard care vs. intervention | 140 | Percentages, means, t-test, Chi-square analyses, linear mixed model regression | 1. Single session attendance<br>2. Treatment completion<br>3. Number of kept sessions | 1. Single session - 95.4% intervention, 82.7% standard<br>2. Completed - 52.3% intervention, 38.7% standard<br>3. 6.3 intervention sessions, 5.2 standard care | Age<br>PMI<br>MI<br>QoFR<br>SP | -<br>+<br>+/-<br>-<br>+ | Adherence:<br>Affective, disruptive behaviour disorder in adolescent ↑ adolescent adherence<br>Single parenthood ↑ general adherence<br>Non-adherence:<br>Anxiety in adolescent ↓adolescent adherence<br>Maternal depression, family cohesion ↓ maternal adherence |

| Study | Study population | Methodology | N | Analysis | Adherence measure | Adherence | Predictors | Comment |
|---|---|---|---|---|---|---|---|---|
| **Adolescent Studies** | | | | | | | | |
| Burgess et al (1998) | Oxford, UK<br>Age 11-18 yrs. | Prospective analytical study | 25 | Percentages, means, Fisher test | Single session within 3 months of attempt | 95.7% adherence | None described | Sample too small for clear predictors |
| King et al (1997) | Michigan, USA<br>Post-hospitalisation<br>Age 13-17yrs | Retrospective case review then analytical study | 66 | Percentages, means, Chi-square and Fisher tests, 2 tailed t-test, analysis of variance | 1. No follow-up<br>2. 1 session<br>3. Complete | 66.7% complete medication follow-up<br>50.8% complete individual therapy<br>33.3% complete family therapy | QoFR -<br>SES -<br>PMI +<br>MI + | Adherence:<br>Better paternal relationship<br>Non-adherence:<br>Maternal depression, paranoia and hostility<br>Adolescent substance abuse |
| Granboulan et al (1995) | Paris, France<br>Post-hospitalisation<br>Age 12-22yrs | Retrospective case review | 265 | Percentages, frequencies, Chi-square and Z tests for comparisons | 3 point scale: complete, partial, none | 32% complete, 22% partial, 35% none | H + | 52% follow-up details untraceable<br>Adherence:<br>Hospitalisation |
| Piacentini et al (1995) | New York, USA<br>Age 11-19yrs | Prospective analytical study | 202 | Percentages, means, Chi-square, multiple linear regression | 1. Number of kept sessions<br>2. Clinician rated reason for termination | 58% overall adherence<br>91% at least 1 session | Age* -<br>Sex* - | Referrals to specialized Suicide Disorder Clinic<br>* Combination significant: Younger males given and kept mores sessions than older males and females |
| King et al (1995) | Michigan, USA<br>Post-hospitalisation<br>Mean: 15 yrs | Prospective analytical study | 100 | Percentages, Chi-square and t-test for variables. | 1. No follow-up<br>2. 1 session<br>3. > 1 session | 86% attended 1, 76% > 1 medication session<br>92% attended 1, 90% 76% > 1 therapy session | Age -<br>Sex -<br>SES -<br>MPx -<br>MI + | Adherence:<br>Depression |
| Trautman et al (1993) | New York, USA<br>Age 10-18 yrs | Prospective analytical study | 115 | Percentages, frequencies, Chi-square, multiple linear regression | Completion of treatment program | 23% adherence | Age -<br>Sex +<br>Race +<br>MPx - | Suicide attempters vs. non-attempters<br>Non-adherence:<br>Female, Hispanic<br>Suicide attempters kept fewer appointments than non-attempters |
| Taylor and Stansfeld (1983) | London, UK<br>Age 8-17yrs | Prospective analytical study | 50 | Percentages, means, Chi-square test | Attendance of first follow-up appointment | 56% adherence | SES -<br>MI +<br>PTxR - | Compliance<br>Depressive symptoms, suicidality<br>Parent positive attitude to treatment |

## Table 2.2. Adherence rates and predictors of adherence to follow-up: adult studies

| Study | Setting | Methodology | N | Analysis | Adherence measure | Adherence | Predictors | Comment |
|---|---|---|---|---|---|---|---|---|
| **Adult studies** | | | | | | | | |
| Sokero et al (2008) | Vantaa, Finland | Prospective analytical study | 269 | Percentages, Chi-square, Fisher exact, Kruskal-Wallis test, ANOVA | Self-report at 6 months<br>1. Regularly<br>2. Somewhat irregularly<br>3. Very irregularly<br>4. Not at all | 70% antidepressant adherence<br>66% psychotherapy adherence | Not described | Suicidal vs. non-suicidal depressed patients adherence comparison<br>Suicidal patients - positive regard to treatment |
| Pillay et al (2005) | Durban, South Africa | Prospective analytical study | 201 | Percentages, frequencies, Chi-square, | Attendance of first, second and third out-patient sessions | 100% - first session (in-patient follow-up)<br>43.5% - second session (out-patient follow-up) | Age -<br>Sex - | Age 10-62 yrs<br>100% adherence while in-patients in hospital<br>Psychology follow-up only |
| Suominen et al (2000) | Helsinki, Finland Age 15+ | Cohort study Personality Disorder suicide attempters vs. non-PD | 114 | Two-tailed t-test, Chi-square, Mann-Whitney, logistic regression model | Starting aftercare treatment | 74% (no difference between PD and no PD) | MI +<br>Ref +<br>OH +<br>Age +<br>TxH + | PD with alcohol dependence – referred less<br>Adherence (in attempters with PD):<br>Active referral, absent alcohol dependence, age, lifetime psychiatric treatment, depression |
| Suominen et al (1998) | Helsinki, Finland, Age 15+ | Prospective study of suicide attempters with depression | 114 | Percentages, Fisher exact test, logistic regression model, | Starting aftercare treatment | 97% adherence | MI + | Inadequate depression treatment before and after attempt noted<br>Adherence:<br>Depression |
| Nordentoft and Sogaard (2005) | General hospitals - Copenhagen, Denmark | Retrospective case record review | 223 | Percentages, means, frequencies | Contact with referral centre within one week of attempt | 57% attended suicide prevention clinic | Not described | 10% not referred for any follow-up |
| Jauregui et al (1999) | Madrid, Spain | Prospective analytical study | 232 | Percentages, means, Chi-square, ANOVA, logistic regression model | Single session attendance within three months of attempt | 26.7% adherence | Age -<br>Sex -<br>MS +<br>Edu -<br>SES -<br>Intent +<br>Metd - | Non-adherence:<br>Intent: Conflict resolution, unmarried |

| Study | Setting | Methodology | N | Analysis | Adherence measure | Adherence | Predictors | | Comment |
|---|---|---|---|---|---|---|---|---|---|
| **Adult studies** | | | | | | | | | |
| Spooren et al (1998) | Gent, Belgium | Randomised controlled study | 647 | Frequencies, percentages, Chi-square test, t-test, multiple, logistic regression | Referral and treatment compliance within 4 months | 30.6 – 78.5% intervention<br>10.5 – 52.7% – standard care | TxT | + | Single session intervention improved adherence |
| Runeson and Wasserman (1994) | Huddinge, Sweden | Prospective case registration study | 100 | Percentages, frequencies, Fisher exact test | Full or partial adherence to aftercare | 62% full adherence<br>18% partial adherence | Sex<br>MPx<br>Age | -<br>-<br>- | Deliberate self-harm included |
| Hengeveld et al (1988) | Leiden, Netherlands | Prospective analytical study | 120 | Percentages, frequencies, Chi-square, | Interview 1 and 7 months after discharge | 79% adherence | H | + | Low patient satisfaction with acute management<br>Adherence:<br>Hospitalisation |
| Moller (1989) | Munich, Germany | Intervention vs. standard care | 226 | Frequencies, percentages | Undefined | 60% - standard care<br>50% - control group<br>72% - intervention group | TxT | + | 2 phase study - treatment group showed better compliance but poorer outcome |

## Abbreviations key

Treatment factors:

TxT: treatment type
TxS: treatment setting
H: hospitalisation
LoH: length of Hospital Stay
SB: service barriers
FUD: follow-up duration
TxH: history of psychiatric treatment

Individual factors:

SP: single parenthood
MI: mental illness
OH: alcohol dependence
TxR: adolescent rating of treatment
MPx: multiple presentations
Metd: suicide attempt method

Family factors:

QoFR: quality of family relationship
QoPR: quality of paternal relationship
PMI: parental mental illness
PTxR: parent rating of treatment

Socio-demographic factors:

MS: marital status
Edu: education
SES: socio-economic status

### 2.3.3. Nature of the studies

There were a wide variation in sample sizes, ranging between 25 and 647. Four studies had samples sizes of less than 100, 9 studies recruited between 100 and 200 patients and 7 studies had sample sizes of greater than 200. The large Spooren et al (1998) study examined the efficacy of several referral strategies compared to standard care at 3 general hospitals using 3 management teams.

Predictors of adherence to follow-up were explored in varying degrees of detail in 11 adolescent studies and 7 adult studies. Three studies noted follow-up adherence but did not look at predictors of adherence - Burgess et al (1998) had a small sample size of 25 and clear predictors of follow-up were not described, Sokero et al (2008) focussed on comparing adherence rates in suicidal versus non-suicidal depressed patients and Nordentoft and Sogaard (2005) carried out a retrospective case audit.

Different predictors of adherence were considered in different samples. For the purposes of this literature review, predictors of follow-up were broadly divided into 4 categories:

1. Socio-demographic factors
2. Individual factors
3. Family factors
4. Treatment factors

Adolescent samples were more likely to consider socio-demographic factors and the effect of others (notably care-givers) on adherence to follow-up. In contrast adult studies focused more on how diagnosis, treatment history and service issues impacted on follow-up. A number of adolescent studies not only looked at predictors of adolescent follow-up but also considered parental follow-up (Burns et al, 2008; Spirito et al, 2002; Rotheram-Borus et al, 1999; King et al, 1995). As mentioned, parental follow-up will not be considered for the purposes of this review.

## 2.4. Methodological issues

### 2.4.1. Sample characteristics

There is a paucity of both prospective and retrospective research on adherence rates and factors that predict adherence after a suicide attempt, with no known studies that are based in the developing world. Furthermore, much of the available research is focussed on adolescent populations, with fewer adult based studies. Some studies include both adolescents and adult populations although there are a number of studies where the age range of the sample is not clearly defined. Mixed-age studies that fail to differentiate between adolescents and adults may consequently provide potentially misleading conclusions about age-related differences in suicidal behaviour.

### 2.4.2. Definitions

An additional difficulty in describing adherence rates may lie in the different definitions of 'adherence' and 'suicide attempt' used in different studies. Definitions of 'adherence' range from 'attendance of the initial follow-up session' (Jauregui et al, 1999) to 'full attendance of an aftercare treatment programme' (Trautman et al, 1993). A number of the articles reviewed did not provide a working definition of a 'suicide attempt'. Furthermore, adolescent suicide ideators are grouped together with suicide attempters in some studies despite the two conditions having potentially different courses (Hazell, 2003).

### 2.4.3. Study design

In general, the reviewed adolescent based studies not only number more, but also were more rigorous in quality compared to the adult ones. Although, the adult studies usually had large patient sample sizes, design limitations limited their value for the purposes of this review. All the included adult studies delineated adherence to follow-up after a suicide attempt, but only three of the studies clearly observed for factors that may be predictive of follow-up adherence. Adherence predictors, and in some cases adherence rates, were secondary considerations of the retrieved adult based studies. Adult studies were also more likely to be retrospective or designed as audits without diagnostic and assessment tools. In contrast, rates of adherence to follow-up and predictors of adherence were common primary considerations of adolescent studies and there were a number of subsequent

interventional programmes and studies that were based on earlier adherence studies.

### 2.4.4. Methods of analysis

All studies used frequencies and percentages to describe the study results, in particular socio-demographic characteristics, diagnosis, suicide attempt profile and follow-up data with means used to describe data on age. Two studies used frequencies and percentages as the only analysis method (Moller, 1989; Nordentoft and Sogaard, 2000).

Sixteen studies used Chi-square ($X^2$) tables to investigate whether distributions of categorical variables differed from one another such as gender and nature of the suicide attempt. Analyses of variance (ANOVAs) co-varying baseline and follow-up measures that were significantly different were primary methods of analyse to test effects of an intervention on therapy attendance (Spirito et al, 2000) or to test quantitative variables (Jauregui et al, 1999). Further comparisons were performed by the Fisher exact test in 5 studies. The Mann-Whitney test was used in comparisons in one study (Suominen et al, 2000). Burns et al (2008) had the longest follow-up period of 2 years and used discrete-time survival analyses to test predictors across the full follow-up period. Regression analysis was used for modelling and analysis of data in 10 studies. Linear regression was used in 5 studies and logistic regression in 5 studies



## 2.5. Relating adherence to outcome

Patients who attempt suicide remain a high-risk group for further suicide attempts, completed suicide and chronic social, employment and psychological impairment (Nordstrom et al, 1995; Hall et al, 1988).

An adolescent suicide attempt is often dismissed as ‘impulsive’ despite having potentially alarming consequences. Adolescents who attempt suicide are at risk of ongoing psychiatric symptoms, repeat attempts, psychological problems as well as academic difficulties (Piacentini et al, 1995). There is some evidence to support the

argument that treatment adherence has positive effects on clinical outcome, for example, Rotheram-Borus et al (1999) found that 7 psychosocial intervention sessions in female adolescent suicide attempters was protective against further suicidal ideation. Psychiatric treatment including individual, family and pharmacotherapy has been shown to lessen psychosocial difficulties and reduce the risk of repeat attempts (Donaldson et al, 2005; Katz et al, 2004; Harrington et al, 2000).

## 2.6. Adherence rates

Adherence with psychiatric out-patient follow-up after emergency unit treatment has generally been shown to be unsatisfactory. Matas et al (1992) found psychiatric patients referred from an emergency unit to be three times less adherent than those referred from other departments. Furthermore, studies among psychiatric patients have shown adherence rates to be highly variable, with Blouin et al (1985) describing psychiatric adherence to follow-up ranging between 18 to 64%.

Follow-up studies looking at adult suicide attempters specifically have also shown a wide variation in adherence rates, ranging from 10.5 – 97% (Spooren et al, 1998; Suominen et al, 1998). Although differences in adherence rates between studies may depend on a number factors (such as study design), it is apparent that across many studies a considerable number of patients fail to attend even one follow-up treatment session. What is equally concerning is that in a retrospective case audit of suicide attempters in Denmark, 10% of patients were not referred for any form of follow-up (Nordentoft and Sogaard, 2005).

Adherence to aftercare among adolescents who have attempted suicide is also recognised to be generally poor. Despite the positive implications of treatment, less than 50% of adolescent suicide attempters are referred for psychotherapy and of those that are referred, a large percentage never actually attend (Piacentini et al, 1995; Spirito et al, 1989). Of those that do attend an initial follow-up session, many do not complete treatment (Piacentini et al, 1995). However, like their adult counterparts, there is a large variability in adherence rates ranging between 33% (King et al, 1997) to 95.4% (Rotheram-Borus et al, 1999). Higher adherence rates

are more likely to be associated with psychosocial intervention strategies than with treatment as usual.

Trautman et al (1993) compared attendance patterns of 115 adolescent suicide attempters to matched non-attempters and found that although both groups terminated treatment at the same rate (77%), suicide attempters kept significantly fewer appointments and dropped out faster than non-attempters.

Similarly, Burns and colleagues (2008) found that 57.7% of their sample of 85 adolescent suicide attempters was non-adherent at some point with psychotherapy and 41.3% with pharmacotherapy over a 2 year follow-up period. Although pharmacotherapy adherence levelled off, adherence to the most frequently used treatments progressively dropped off at each 6-month time point after the suicide attempt. Granboulan et al (2001) looked at adherence rates over three months post-hospitalisation and reported that 32% of adolescent suicide attempters attended all their appointments, 11% attended one session and 25% did not attend any after care appointments.



## 2.7. Predictors of adherence

### 2.7.1. Introduction

Despite the serious immediate and long-term risks of suicide attempts, there is a paucity of research on predictors of adherence with follow-up in particular among the at-risk adult population. A number of possible predictors have been studied in adolescents including patient variables, nature of the presenting condition, service characteristics, family factors, and environmental influences. Subsequently, although several predictive factors have been implicated in treatment adherence of the adolescent suicide attempter, studies have shown inconsistent results. This may possibly be due to wide variability in sample characteristics, assessment and treatment procedures, and definitions of treatment adherence.

### 2.7.2. Socio-demographic factors

Socio-demographic factors, in particular age and gender, are arguably the most studied predictive factors of treatment adherence after a suicide attempt. A number of adult studies have found socio-economic status, age and gender to not be significantly related to adherence with follow-up (Jauregui et al, 1999; Runeson and Wasserman, 1994), although younger age predicted better compliance in a systematic sample of adult patients with personality disorder who had attempted suicide (Suominen et al, 2000).

In adolescents, Trautman et al (1993) found that treatment adherence was not correlated with the attempter's age but girls did miss more sessions than boys. On the other hand, Piacentini et al (1995) showed that age and gender, although not significant in isolation, has a combined significant predictive effect. In the reported study, younger male attempters kept more appointments than both older males and females. However, a number of studies have found no significant relationship between age or gender and adherence (King et al, 1995; Hazell, 2003; Granboulan et al, 2001; Rotheram-Borus et al, 1999). Although the relationship between schooling and adherence to follow-up after a suicide attempt has been little studied, Granboulan et al (2001) did find that non-adherent suicide attempters were more likely to have repeated two or more years at school prior to an attempt.

### 2.7.3. Individual factors

In adult patients major depression at the time of a suicide attempt has been associated with better adherence to subsequent follow-up. Suominen et al (1998) found that patients with major depression who attempted suicide had an uncommonly high adherence rate of 97%. Patients with personality disorders and co-morbid major depression who attempted suicide were also found to be more likely to adhere (Suominen et al, 2000). In the same study, suicide attempters with a history of previous psychiatric treatment and patients without a history of alcohol dependence were also more adherent to after care. There is a deficiency of adult studies examining follow-up adherence in relation to the nature of the suicide attempt. Jauregui et al (1999) found that if the intention of the suicide attempt was

to resolve a conflict, the patient was less likely to thereafter adhere to psychiatric follow-up.

The link between adherence and specific baseline psychopathology in adolescent patients has been considered by a number of studies with variable results. Adherence has been positively linked to greater premeditation (Granboulan et al, 2001; Spirito et al, 2002) and a higher degree of suicidal intent (Taylor and Stansfeld, 1983). Studies also show that patients with depressive and other affective disorders who attempt suicide are more likely to adhere to treatment (Taylor and Stansfeld, 1983; Rotheram-Borus et al, 1996; Granboulan et al, 2001).

However, the contribution of anxiety disorders to post-attempt adherence is conflicting. Rotheram-Borus et al (1996) and Burns et al (2008) both found anxiety disorders to be negative predictors of compliance in contrast to Granboulan et al (2001) who found adolescent suicide attempters with anxiety to be more likely to comply. Similarly, variable results are seen in the relationship between disruptive behaviour disorders and substance use with follow-up adherence. Burns et al (2008) reported that disruptive behaviour disorder and substance dependence (besides alcohol and cannabis) predicted medication non-adherence at 6 months follow-up, in contrast to some studies that describe attempters with disruptive behaviour disorders (Rotheram-Borus et al, 1996) and those that abuse illicit substance as being more likely to comply (Granboulan et al, 2001).



### 2.7.4. Family factors

A limited number of adolescent studies have looked at the characteristics of the family as predictors of adherence including parental psychiatric illness, parental attitude to treatment, and family cohesion. King et al (1997) reported that the parent's psychiatric symptomatology was likely to predict their childs's treatment adherence. In particular mother's depressive symptoms were linked to poorer adherence to adolescent individual and family therapy. Rotheram-Borus et al, 1999 reported similar findings and surmised that disturbed parents may minimise the severity of the attempt or may just not have the resources available to attend to the adolescent's problems. In contrast, Burns et al found a history of parental psychopathology was unrelated to the child's treatment adherence. Other factors

identified as having a beneficial effect on treatment compliance include a positive parental perception of therapy (Burns et al, 2008), and parental involvement in treatment (Taylor and Stansfeld, 1983). Greater family cohesion was somewhat unexpectedly associated with poorer treatment adherence in the study by Rotheram-Borus et al (1999), possibly related to the mothers perceiving themselves less involved in their children's care if engaged in therapy.

### 2.7.5. Treatment factors

The nature of the initial assessment appears to have a significant effect on future treatment adherence. After standardisation of emergency room care and procedures, Rotheram-Borus et al (1999) found a marked increase in treatment adherence compared to previous studies based at the same emergency department (Piacentini et al, 1995). Similarly, in a large interventional study by Spooren et al (1998) performed in three hospitals, greater variation in adherence was found between the different hospitals than between interventional care and standard care.

Studies have shown that post-attempt hospitalisation is strongly predictive of future treatment adherence (Hengeveld et al, 1988; Granboulan et al, 1995). In a later study, Granboulan et al (2001) further found that therapy while hospitalised predicted aftercare adherence. A brief in-patient psychiatric stay after an adolescent suicide attempt was related to both higher use of psychotropic medication and more contact with a mental health professional, although hospitalisation was not controlled for in the study (Spirito et al, 2002). In the same study, service barriers in the community were related to poorer treatment attendance.

A number of interventional programmes, especially for adolescent suicidal attempters, have been developed to facilitate greater follow-up attendance. As mentioned, a review of interventions for suicide attempters is beyond the scope of this chapter, but an overview of intervention strategies is warranted. Intervention studies can broadly be broken-up into four categories namely: psychiatric management of poor compliance (which involve strategies to improve continuity of care such as home visits); guaranteed in-patient shelter (where it is assumed that by offering patients concrete options out of a crisis, repeat suicide attempts are

prevented.); psychosocial crisis intervention (involving planned appointments that focus on problem solving); and cognitive-behaviour treatment (Van der sande et al, 1997). A randomised controlled study investigating the efficacy of several referral strategies in 3 different hospitals met with limited success (Spooren et al, 1998). It remains unclear as to which combination of referral arrangements will give the best results in which patients.

## 2.8. Conclusions

Several studies highlight the importance of further research in this area, in particular in adult patients. The predictive factors that have been identified do not work in isolation and are inter-related; with treatment factors linked to socio-demographic and patient factors (Granboulan et al, 1995). Patients with more severe psychopathology are more likely to have premeditated the attempt, are more likely to be hospitalised and are better with after-care compliance. Inconsistent attendance and high attrition rates has hampered systemic appraisal of available treatments and has limited the development of new treatments for the suicidal patient. In order to develop these new treatments, further studies that consider the extent and predictors of treatment adherence are necessary. In particular there is a significant absence of research in this field in developing countries. This review highlights the need for comprehensively examining after-care adherence and predictors of adherence in the South African context.

# CHAPTER 3: METHODOLOGY

## 3.1. Introduction

Chapter 2 systematically reviewed the literature and identified several research questions; chapter 3 describes the methodology used to provide data to investigate them. An introduction to the methodology was provided in section 1.4 of chapter 1; this chapter aims to build on that introduction and to provide assurance that appropriate procedures were followed. The chapter is organised around four major topics: the study design, the study setting, procedures for recruitment and data collection, and ethical considerations.

## 3.2. Study Design

The research study is a prospective analytical study.

## 3.3. Setting

### 3.3.1. Overview of setting

The study was conducted at the psychiatric emergency unit (PEU) of Groote Schuur Hospital, a general hospital in Cape Town, South Africa. The PEU comprises an assessment area where new patients and follow-ups are seen, as well as a 10-bedded short stay in-patient unit. Assessment by a psychiatric registrar takes place once the patient is medically stabilised.

All patients who present to Groote Schuur Hospital subsequent to a suicide attempt are referred to a psychiatric registrar at the PEU following medical stabilisation. An exception to this is patients under the age of 13 years who are referred to paediatric psychiatric services outside of Groote Schuur Hospital. Therefore, the age profile of patient's attending the PEU comprises both adolescents and adults including geriatric patients.

Based on the psychiatric assessment by the registrar, patients are either admitted to the PEU or discharged. If discharged, a follow-up plan is drawn up in consultation with the patient. Follow-up generally involves attendance at a follow-up centre.

The follow-up centres include government and private psychiatric clinics, counselling services, therapeutic units, substance abuse services, non-psychiatric medical services and non-governmental supportive services.

### 3.3.2. Justification for setting

Many communities in Cape Town remain segregated as a consequence of apartheid. For that reason, local community clinics may service racially and economically homogenous populations. As a referral centre, Groote Schuur Hospital sees a varied racial and economic patient population. As described in Chapter 2, the Literature Review, similar studies have largely been based in the developed world with the developing world underrepresented generally in suicide literature. Results from this study would therefore be more representative not only of the diverse population of South Africa but may also begin to address the paucity of information on suicide literature in the developing world.

## 3.4. Procedure

### 3.4.1. Study Sample

Groote Schuur Hospital is a tertiary hospital and serves patients from the Western, Southern and greater Cape Town area. It also performs a secondary level service to localised neighbouring communities. As described, patients assessed at Groote Schuur Hospital represent a cross-section of races, socio-economic groups, cultures and languages.

The study sample comprised 100 patients from 20th February 2007 who presented to the PEU following a suicide attempt. The original study design was for 100 consecutive post-suicide attempt presentations from the study start date. However, the assessors of this study were clinicians involved in managing a busy emergency unit and not all potential patients that were seen were considered for the study.

In addition, only patients not admitted to the PEU were considered for the study. Since the in-patient ward of the PEU is a short-stay facility, admitted patients are often referred to one of a number of other hospitals for further in-patient management and subsequent care is difficult to monitor.

The inclusion criteria for the study were:

a) Male or female out-patients

b) Aged over 12 years

c) A suicide attempt

The exclusion criteria for the study were:

a) Further immediate management involving in-patient psychiatric care

b) Self-harm without suicidal intent

### 3.4.2. Assessment of the study sample

Psychiatric registrars stationed at the PEU routinely assess those patients who present subsequent to a suicide attempt. During the study period, registrars extended their routine clinical assessment to include recruitment for the study, informed consent, a socio-demographic questionnaire, a questionnaire detailing the suicide attempt and a clinical diagnostic assessment and follow-up plan (appendix 1, 3, 4 and 5). Registrars were provided with written and verbal instructions on the assessment procedure. Management of the patients was not altered by the study and remained 'treatment as usual'. A confidential record of all patients recruited for the study was kept separately from the routine clinical notes of the patient.

A pilot study of three patients was conducted prior to recruitment for this study. This was done to test the ease of use of the questionnaires, to determine the time taken for each assessment and to smooth out any logistical problems.

### 3.4.3. Measurements

Three questionnaires were administered by the psychiatric registrars that assessed the recruited patients:

1. Socio-demographic questionnaire (appendix 3)
2. Nature of the suicide attempt questionnaire (appendix 4)
3. Diagnosis and follow-up plan questionnaire (appendix 5)

Registrars were fully briefed by the investigator on how to administer the questionnaires. Additionally, a written information leaflet for the assessing registrar was provided with each questionnaire (appendix 2).

The questionnaires used are adapted instruments of the World Health Organisation (WHO) Multisite Intervention Study on Suicidal Behaviours (SUPRE-MISS) (WHO, 2002). The SUPRE-MISS is a multinational initiative launched in 2000 by the World Health Organisation with the aim of decreasing the morbidity and mortality associated with suicidal behaviour. It involves research over a 40-month period in both developed and developing countries including sites in Durban, South Africa. SUPRE-MISS has three components:

1. A randomised clinical trial to evaluate treatment procedures in emergency departments within a specific catchment area;
2. A community survey to identify suicidal behaviour and ideation in the same catchment areas;
3. A qualitative description of the socio-cultural characteristics of the defined communities.

Participants enrolled in the sub-project at emergency departments are randomised to treatment as usual or a brief intervention with all patients followed-up at specific time points. The WHO questionnaire was shortened for the purpose of the study and supplementary questions regarding follow-up adherence were added. The overall structure of the assessment of the suicide attempt patient was unchanged. Adherence to follow-up and predictors of adherence are not the primary areas of focus of the study.

### 3.4.4. Follow-up

Follow-up centres were contacted one month subsequent to the initial assessment. The clinical records of the referred patients were consulted and attendance of follow-up noted. If a patient was referred to more than one follow-up centre, attendance was regarded as affirmative if the patient attended at least one of the centres. Characteristics on initial presentation of those who attended follow-up were compared to those who did not attend.

If a patient did not attend any form of planned follow-up, the referral centre was provided with contact details of the patient to assess potential ongoing risk and re-schedule an appointment if necessary.

### 3.5. Data management and analysis

Data was entered into a database developed using Microsoft Excel. Statistical analyses were conducted using the Statistica programme (StatSoft, 2007). The sample was described using proportions (with 95% confidence intervals) and means (with standard deviations), for the sample as a whole and stratified by follow-up status. A P-value of <0.05 was regarded as significant. In a set of bivariate analyses, those that presented for follow-up were compared with those that did not using unadjusted odds ratios (with 95% confidence intervals).

Thereafter, a multiple logistic regression model of follow-up status on the proposed predictors of follow-up was developed. Variables were included in the multiple logistic regression model if they were statistically associated with follow-up in the bivariate analysis. Variables were retained in the logistic regression model if they were statistically significantly associated or if their addition or removal altered the relationship between other variables and the outcome. For the purposes of the logistic regression, certain categorical variables were dichotomised.



### 3.6. Ethical considerations

#### 3.6.1. Ethical approval

Ethical approval was obtained through the Health Sciences Faculty of Groote Schuur Hospital Research Ethics Committee prior to any participants being enrolled on the study. The study complies with the Guidelines for Good Practice in the Conduct of Clinical Trials in Human Participants in South Africa (2001) and the Helsinki Declaration of 2000 (WMA, 2000).

#### 3.6.2. Informed consent

Participation in the study was contingent on signed informed consent (appendix 1). All patients considered for the study were given a verbal explanation about the

study and received a study information sheet that was written in plain language (appendix 1). All patients were given telephonic contact numbers of the investigator and the PEU should any questions arise at a later stage.

Registrars were informed that if a patient was unable to consent due to their mental state, the next of kin could consent but the patient needed to assent. There were no patients enlisted for the study where such a situation occurred. This may be because patients who required in-patient management were excluded from the study and admitted patients were most likely to be the patients unable to give consent. The parent or legal guardian of adolescent patients was requested to sign the informed consent form with the adolescent assenting to the study. Treatment was not altered if the patient declined to be in the study and participants were free to withdraw at any time from the study without compromising ongoing care.

### 3.6.3. Confidentiality

All information was recorded separately from the patient's routine clinical folder and stored in a locked cabinet at the investigator's office. Identifying data were confined to the questionnaire and not reported in any way that could have led to a revelation of the patient's identity. Any further publications and reports in any form will maintain patient confidentiality. All patients recruited for this study provided informed consent to allow for the investigator to contact and reveal identifying data to the follow-up agency.



### 3.6.4. Risks and benefits of participation

All participants received standard clinical care offered at the PEU with the possible additional benefit of a comprehensive evaluation of suicide risk. A disadvantage to participation in the study is that patients needed to spend extra time at the PEU while being assessed. Anecdotal feedback from the registrars was that the informed consent and questionnaires added, on average, an additional 15 minutes to the assessment time. Patients did not receive financial compensation for being part of the study. There were no known risks of participating in this study.

# Chapter 4: Results

## 4.1. Profile of the sample

The study sample comprised 100 patients from 20th February 2007 to 28 September 2007 who presented to the PEU following a suicide attempt. The original study design was for 100 consecutive post-suicide attempt presentations from the study start date. However, the assessors of this study were clinicians involved in managing a busy emergency unit and not all suicide attempters were considered for the study. 3 patients declined to join the study.

## 4.2. Socio-demographic characteristics

Socio-demographic data for the patient sample is presented in (Table 4.1.). The age of the patients ranged from 14 to 78 years with a mean of 30.24 (SD 11.9) years. Of the 100 patients, 69 were female. Fifteen patients were adolescents aged 13-18 years with only one patient over the age of 60 years. Just over half (51%) of the patients sampled were single, 30% were married or living with their partner and 14% were divorced or widowed. On average, patients lived in households of 4.3 (SD 2.6) inhabitants, with a wide range of between one and 16 people per dwelling. The patients referred to the PEU came from 7 different Cape Town Health sub-districts with 16% of patients coming from outside the appropriate referral areas.

The average household income of the sample was R5411 per month although the median was R3500. Availability of basic amenities was high with water, sanitation, electricity supply and telephone services available to over 90% of the patients. Six percent of the sample was recipients of disability grants, 23% were full-time students and, of the remainder of the patients, 45% were unemployed.

The majority of the patients (81%) had at least a secondary school education and of those, 15% were tertiary educated. Most patients (97%) identified themselves as belonging to a religion, 67% being Christian, 23% being Muslim and 3% other faiths. However, 38% of patients did not see religion being an important part of their lives.

## Table 4.1. Socio-demographic characteristics (n=100)

| | | % |
|---|---|---|
| **Gender** | Male | 31 |
| | Female | 69 |
| **Age (years)** | 13-18 | 15 |
| | 19-25 | 29 |
| | 26-35 | 29 |
| | 36-45 | 15 |
| | 45-60 | 11 |
| | 60+ | 1 |
| **Marital status** | Single | 56 |
| | Married/living together | 30 |
| | Divorced | 12 |
| | Widowed | 2 |
| **Number in household** | 1 | 6 |
| | 2 | 20 |
| | 3-4 | 40 |
| | 5-7 | 23 |
| | 8-10 | 8 |
| | 10+ | 3 |
| **Health subdistrict** | Central | 31 |
| | Klipfontein | 45 |
| | South | 6 |
| | Khayelitsha | 2 |
| | Mitchell's Plein | 8 |
| | North | 1 |
| | Tygerberg | 4 |
| | Outside Cape Town | 3 |
| **Education** | Grade 7 | 21 |
| | Grade 8-10 | 27 |
| | Grade 10-12 | 37 |
| | Tertiary | 15 |
| **Religion** | Christian | 67 |
| | Muslim | 23 |
| | Other | 3 |
| **Religion important** | Yes | 62 |
| | No | 38 |

## 4.3. Nature of the suicide attempts

### 4.3.1. Settings of suicide attempts

Data concerning the setting of the suicide attempts is presented on Table 4.2. Most (90%) of the suicide attempts were carried out at the patient's homes with the remainder of the attempts equally distributed across various other locations such as at the work place, at the patient's partner's home, on train tracks and on deserted fields. In this sample, suicide attempts were more likely to occur in the evenings (48% of attempts) than at other times of the day. The day of the week did not impact on the likelihood of a suicide attempt.

### 4.3.2. Methods used

Overdosing on medication was by far the most common (87%) method of attempting suicide. A further 8% of patients consumed poison, 3% presented with lacerations, one person lay on a train track and another tried to gas himself. Multiple methods of attempting suicide were used by 4% of patients. The data regarding methods patients used to attempt suicide is summarised in Table 4.3.

**Table 4.2. Settings of suicide attempts (n=100)**

| | | % |
|---|---|---|
| **Location** | Patient's home | 90 |
| | At work | 2 |
| | At partner's house | 2 |
| | Other (1% each) | 6 |
| **Attempt time** | 05h00-11h59 | 21 |
| | 12h00-19h00 | 31 |
| | 19h00-04h59 | 48 |
| **Day of the week** | Mon | 17 |
| | Tues | 15 |
| | Wed | 11 |
| | Thurs | 20 |
| | Fri | 12 |
| | Sat | 8 |
| | Sun | 17 |

**Table 4.3. Methods used for attempting suicide (n=100)**

| | % |
|---|---|
| **Overdose** | 87 |
| **Poisoning** | 8 |
| **Laceration** | 3 |
| **Gassing** | 1 |
| **Train tracks** | 1 |
| **Multiple methods** | 4 |

### 4.3.3. Planning and intent

A number of questions further looked at the seriousness of the suicide attempt. Data regarding the planning and intent of the suicide attempt is presented in Table 4.4. Just under a quarter of the patients (22%) planned the attempt so that intervention from others would be unlikely, 7% took active precautions to prevent intervention, 24% took passive precautions and 13% organised their affairs before attempting suicide. For 19% of patients there was some active planning of the attempt and 2% of patients made detailed plans. Of those who did actively plan the attempt, 77% wrote a suicide note, 15% sent their family away and 8% organised their finances.

On the other hand, 47% of patients timed the suicide attempt so that intervention was probable, 69% took no precautions to prevent intervention and 49% informed someone soon after the suicide attempt. Immediate family members and partners were the most likely to be informed (67%), although 27% called a friend and a smaller number (6%) called a professional for help.

Although 39% of patients intended to die at the time of the attempt, the motivation of the remainder of patients varied, with 38% of patients not wanting to die and 23% not caring whether they lived or died. Besides wanting to die, major motivating factors for the suicide attempt included wanting to prove a point to others (21%) and wanting a temporary rest (23%). Five percent of patients were motivated by anger, 3% saw the attempt as a cry for help, 3% hoped the attempt would make their problems go away, 3% did not realise the amount they were ingesting and 5% of patients did not know what motivated them.

## Table 4.4. Planning and intent

| | | % |
|---|---|---|
| **Planning (n=100)** | Nil | 79 |
| | Some | 19 |
| | Extensive | 2 |
| **Details of plan (n=21)** | Suicide note | 77 |
| | Sent family away | 15 |
| | Organised finances | 8 |
| **Probability of intervention (n=100)** | Did not think about it | 31 |
| | Highly unlikely | 9 |
| | Unlikely | 13 |
| | Likely | 47 |
| **Precautions against Intervention (n=100)** | No precautions | 69 |
| | Active precautions | 7 |
| | Passive precautions | 24 |
| **Inform others of attempt (n=100)** | Yes | 49 |
| | No | 51 |
| **Who were informed (n=49)** | Family | 44 |
| | Friend | 27 |
| | Partner | 23 |
| | Professional | 6 |
| **Organisation of affairs (n=100)** | Yes | 13 |
| | No | 87 |
| **Live/die intent (n=100)** | Did not want to die | 38 |
| | Did not care | 23 |
| | Wanted to die | 39 |
| **Motivation (n=100)** | Prove a point | 21 |
| | Temporary rest | 23 |
| | Death | 39 |
| | Other | 17 |
| **Other motivation (n=17)** | Anger | 29 |
| | Do not know | 29 |
| | Cry for help | 16 |
| | Didn't realise amount ingested | 12 |
| | Make problems disappear | 12 |

### 4.3.4. Substance use in relation to suicide attempts

For 19% of patients, alcohol or illicit drugs had a direct relation to their suicide attempt. The results of the relationship between substance use and the suicide attempt is presented in Table 4.5. In 4% of patients, alcohol or drugs were taken intentionally to facilitate and implement the suicide attempt and for a further 15% of patients the use of alcohol or drugs was sufficient to have caused deteriorated capacity. Alcohol was by far the most commonly used substance at the time of the attempt (89%). The illicit drugs that were used were methaqualone (5%), pseudephedrine (5%), and one patient used a combination of methaqualone and methamphetamine.

### 4.3.5. Medical consequences of suicide attempts

In just over half the sample (57%), medical or surgical interventions were required subsequent to the attempt but there was no danger to the patient's life. For a further 29% of patients, no medical or surgical intervention was necessary, whilst urgent life-saving interventions were required for 14% of patients. This is in contrast to the patient's perception of potential consequences of the suicide attempt. For a substantial number (42%), the consequence of the attempt was not taken into consideration. Death was regarded as unlikely by 24% of patients and possible but not probable by 11% of patients. For 23% of patients, death was seen as a certainty. The data regarding patients' perceptions of potential consequences and actual medical consequences of suicide attempts are presented in Table 4.6.

**Table 4.5. Substance use in relation to suicide attempt (n=100)**

| | | % |
|---|---|---|
| **Substance use (n=100)** | None | 81 |
| | Sufficient for deterioration of capacity | 15 |
| | Deliberate use to facilitate attempt | 4 |
| **Substance type (n=19)** | Alcohol | 89 |
| | Methaqualone | 5 |
| | Pseudoephedrine | 5 |
| | Methaqualone + methamphetamine | 1 |

**Table 4.6. Medical consequences of suicide attempt (n=100)**

| | | % |
|---|---|---|
| **Patient's perception of consequences** | Did not think about it | 42 |
| | Death unlikely | 24 |
| | Death possible but unlikely | 11 |
| | Death was certain | 23 |
| **Medical intervention** | None | 29 |
| | Some, but no danger to life | 57 |
| | Significant, with danger to life | 14 |

### 4.3.6. History of suicide attempts

A high percentage of patients (41%) had attempted suicide previously. Data regarding previous suicide attempts is presented in Table 4.7. The number of previous attempts average 1.84 (SD 1.15) and ranged between 1 and 5. Just over half of the patients (57%) who had attempted suicide previously had tried once before, 26% twice, 5% three times, 7% four times and 5% of patients had attempted suicide 5 times previously. Overdose was the most common method of attempting suicide in previous attempts (used in at least 95% of patients who had attempted suicide previously). A further 5% of patients lacerated themselves during previous attempts and 5% ingested poison. More than half (57%) of repeat attempts occur within 1 year of the previous attempt with 12% of previous attempts occurred over 10 years prior to the presenting suicide attempt.

### 4.3.7. Previous psychiatric treatment

One third (33%) of patients had a history of previous psychiatric or psychological contact, with 5% using more than one type of psychiatric service previously. Previous psychiatric treatment is presented in Table 4.8. Previous contact comprised private psychiatric services (36%), specialist psychiatric services (21%), community clinic follow-up (20%), acute crisis management (15%), psychiatric hospital admission (12%) and counselling services (3%).

### 4.3.8. Current psychiatric treatment

One fifth (20%) of patients were receiving psychiatric or psychological treatment at the time of the suicide attempt. Current psychiatric help consisted of private psychiatric out-patient follow-up (35%), specialised psychiatric out patient follow-up (20%), community clinic follow-up (20%) and a range of other treatments (20%) including hospice care, general practitioner follow-up school and university counselling.

### 4.3.9. Diagnosis

A primary clinical diagnosis was recorded on all patients and was based on criteria according to the Diagnostic and Statistical Manual for mental disorders, fourth version (DSM IV). Diagnosis on axis 1 and axis 2 only were recorded. Table 4.10

shows adjustment disorders to be the most common diagnosis (30%). Major Depression was diagnosed in 25% of patients, 18% of patients received a V-code diagnosis, 16% had a substance related disorder, 3% had a primary anxiety disorder diagnosis, 2% were diagnosed with schizophrenia and 2% of patients were diagnosed with borderline personality traits or personality disorder. Other diagnosis (4%) included dysthymia, conduct disorder and sleep disorder.

**Table 4.7. History of previous suicide attempts**

| | | % |
|---|---|---|
| **Previous suicide attempt/s (n=100)** | Yes | 59 |
| | No | 41 |
| **Number of previous attempts (n=59)** | One | 57 |
| | Two | 26 |
| | Three | 5 |
| | Four | 7 |
| | Five | 5 |
| **Method of previous attempt/s (n=59)** | Overdose | 95 |
| | Laceration | 5 |
| | Poisoning | 5 |
| **Time since last attempt in years (n=59)** | 0-1 | 57 |
| | 2-4 | 31 |
| | 5-10 | 3 |
| | 10+ | 12 |

**Table 4.8. Psychiatric history**

| | | % |
|---|---|---|
| **Previous psychiatric contact (n=100)** | Yes | 33 |
| | No | 67 |
| **Type of previous contact* (n=33)** | Private psychiatric services | 36 |
| | Specialised psychiatric service | 21 |
| | Community clinic | 20 |
| | Crisis management | 15 |
| | Admission | 12 |
| | Counselling | 3 |

* Can be more than one type of psychiatric contact

**Table 4.9. Current psychiatric contact**

| | | % |
|---|---|---|
| **Current psychiatric contact* (n=100)** | Yes | 20 |
| | No | 80 |
| **Type of contact (n=20)** | Private psychiatric services | 35 |
| | Specialised psychiatric service | 20 |
| | Community clinic | 20 |
| | Counselling | 10 |
| | Hospice | 5 |
| | General Practitioner | 5 |

* Can be more than one type of contact

**Table 4.10. Diagnosis (n=100)**

| | % |
|---|---|
| **Adjustment disorder** | 30 |
| **Major depressive disorder/episode** | 25 |
| **V-code** | 18 |
| **Substance related disorder** | 16 |
| **Anxiety Disorder** | 3 |
| **Dysthymia** | 2 |
| **Schizophrenia** | 2 |
| **Borderline personality traits/disorder** | 2 |
| **Conduct disorder** | 1 |
| **Sleep disorder** | 1 |

## 4.4. Follow-up

### 4.4.1. Follow-up plan

After acute management and psychiatric assessment, the attending psychiatric doctor recommended further follow-up in consultation with the patient. Patients could have been referred to more than one service. This data is presented in Table 4.11 and Table 4.12. A number of patients (10%) were not referred to any follow-up service and a further 7% were given contact details only of relevant services should suicidal ideation recur. 17% were given specific follow-up dates to return to the PEU for follow-up, 34% were referred to their local community clinic for follow-up, 9% were referred to a private psychiatric or psychological service, 21% were referred to specialist counselling services, 13% were referred for specialist governmental psychiatric out-patient follow-up. Two patients were referred for an assessment for a therapeutic unit admission and one patient for further management by her general practitioner.

### 4.4.2. Response to follow-up plan

The majority of patients (81%) accepted to attend follow-up centres, 8% were unsure whether they would attend, 1% refused to attend and 10% were not referred for further follow-up. The results of the patients' response to the follow-up plans are presented in Table 4.13.

### 4.4.3. Adherence to follow-up

Follow-up centres were contacted one month subsequent to the initial assessment. The clinical records of the referred patients were consulted and attendance of follow-up noted. If a patient was referred to more than one follow-up centre, attendance was regarded as affirmative if the patient attended at least one of the centres. Attendance of follow-up was roughly split equally between those that attended (51%) and those that did not attend follow-up (49%).

**Table 4.11. Follow-up plan* (n=100)**

| | % |
|---|---|
| **Not referred further** | 10 |
| **Given contact details of support service** | 7 |
| **Community clinic** | 34 |
| **Specialised counselling service** | 21 |
| **Specialised psychiatry out-patients** | 13 |
| **Return to PEU on specific date** | 16 |
| **Private psychiatric service** | 9 |
| **Therapeutic ward assessment** | 4 |
| **General Practitioner** | 1 |

*Can be referred to more than one type of service

**Table 4.12. Specialised service type (n=34)**

| | | n | % |
|---|---|---|---|
| **Specialised counselling (n=21)** | Drug counselling | 10 | 48 |
| | Family intervention | 5 | 24 |
| | Student counselling | 4 | 19 |
| | Hospice | 1 | 5 |
| | Trauma counselling | 1 | 5 |
| **Specialised psychiatry out-patients (n=13)** | Tertiary hospital out-patients | 9 | 69 |
| | Child and adolescent unit | 4 | 31 |

**Table 4.13. Response to follow-up plan (n=100)**

| | % |
|---|---|
| **Accepted to attend follow-up** | 81 |
| **Unsure if will attend follow-up** | 8 |
| **Refused to attend** | 1 |
| **Not referred for follow-up** | 10 |

### 4.5. Predictors of adherence to follow-up

For the analysis of continuous variables (like age) versus nominal variables (such as gender), analysis of variance (ANOVA) was used to investigate if the means of the continuous variables differed between the levels of the nominal variable. If the data was not normally distributed, a non-parametric test was necessary and in this study, the Mann-Whitney test was used. If residual data was not normally distributed, bootstrap procedures (computer intensive re-sampling) were used. (Efron and Tibshirani, 1993).

#### 4.5.1. Socio-demographic factors

Of the socio-demographic factors, age was a predictive factor of adherence (p=0.018) once the bootstrap procedure was performed, but categorised age groups were not significant. The average age of non-adherers was 27.7 as compared to adherers who were on average 33.3 years old. Men were less likely to adhere than women (40% compared to 56.14%), but this result was not statistically significant. Other socio-demographic factors including level of education, marital status, religion, employment and household amenities did not show a significant effect on adherence.

**Table 4.14. Predictors of adherence to follow-up: Socio-demographic characteristics**

n = number of patients who had a follow-up plan
n Ad = number of patients who adhered to follow-up plan
% Ad = percentage contribution of category towards adherence

| Variable | n | n Ad | % Ad | p-value |
|---|---|---|---|---|
| **Gender** | | | | |
| Male | 25 | 10 | 40 | |
| Female | 57 | 32 | 56.14 | 0.18 |
| **Age (years)** | | | | |
| 13-18 | 12 | 6 | 14.29 | |
| 19-25 | 25 | 10 | 23.81 | |
| 26-35 | 23 | 10 | 23.81 | |
| 36-45 | 11 | 6 | 14.29 | |
| 45-60 | 10 | 9 | 21.43 | |
| 60+ | 1 | 1 | 2.38 | **0.018** |
| **Marital status** | | | | |
| Single | 27 | 15 | 35.71 | |
| Married/living together | 44 | 21 | 50 | |
| Divorced | 9 | 4 | 9.52 | |
| Widowed | 2 | 2 | 4.76 | 0.35 |
| **Employment** | | | | |
| Yes | 27 | 12 | 50 | |
| No | 27 | 12 | 50 | 1.00 |
| **Disabled** | | | | |
| Yes | 6 | 3 | 7.14 | |
| No | 76 | 39 | 92.86 | 0.95 |
| **Student** | | | | |
| Yes | 20 | 7 | 30.95 | |
| No | 62 | 13 | 69.05 | 0.15 |
| **Religion important** | | | | |
| Yes | 31 | 17 | 54.84 | |
| No | 51 | 25 | 49.02 | 0.69 |

**Table 4.15. Predictors of adherence to follow-up: Age**

| | | N | Age mean | Age SD | Age CI |
|---|---|---|---|---|---|
| **Total** | | 82 | 30.6 | 12.4 | 27.87-33.33 |
| **Follow-up** | No | 40 | 27.72 | 8.82 | 24.9-30.55 |
| **Follow-up** | Yes | 42 | 33.34 | 14.65 | 28.77-37.91 |

### 4.5.2. Nature of the suicide attempt

Data concerning predictors of adherence to follow-up in relation to the nature of the suicide attempt is presented in Table 4.16. Most (90%) of the suicide attempts were carried out at the patient's homes with overdosing on medication being the most common method that was used (87%). Therefore neither the setting, nor the method used for the attempt produced statistically significant predictors of adherence to follow-up.

The patient's reported planning of the attempt (p=0.78), intent (p=0.56) and perception of the probability of intervention (p=0.89) did not impact on the probability of follow-up. The degree of medical or surgical intervention required after the attempt also did not have a significant effect on whether the patient followed-up or not (p=0.47). On the other hand, the greater the actual active precautions taken to avoid intervention, the greater the chance the patient would adhere to follow-up (p=0.029). All patients who took active precautions to prevent someone from intervening during the suicide attempt attended further follow-up.

Patients who used substances at the time of the attempt intentionally to facilitate and implement the attempt or sufficiently to cause deterioration in capacity were not more likely to adhere to follow-up (p=0.97). This result was not due to confounding factors such as a diagnosis of depression or follow-up at a specific centre.

**Table 4.16. Predictors of adherence to follow-up: Nature of the suicide attempt**

n = number of patients who had a follow-up plan
n Ad = number of patients who adhered to follow-up plan
% Ad = percentage contribution of category towards adherence

| Variable | Category | n | n Ad | % Ad | P-value |
|---|---|---|---|---|---|
| **Planning** | | | | | |
| | None | 63 | 31 | 73.81 | |
| | Some planning | 17 | 10 | 23.81 | |
| | Extensive | 2 | 1 | 2.38 | 0.78 |
| **Probability of intervention** | | | | | |
| | Did not consider | 24 | 11 | 26.19 | |
| | Highly unlikely | 7 | 4 | 9.52 | |
| | Unlikely | 12 | 7 | 16.67 | |
| | Likely | 39 | 20 | 47.62 | 0.89 |
| **Intent** | | | | | |
| | Did not want to die | 28 | 14 | 33.33 | |
| | Did not care | 19 | 8 | 19.05 | |
| | Wanted to die | 35 | 20 | 47.62 | 0.56 |
| **Precaution against intervention** | | | | | |
| | No precautions | 57 | 29 | 69.05 | |
| | Some precautions | 18 | 6 | 14.29 | |
| | Active precautions | 7 | 7 | 16.67 | **0.029** |
| **Physical Consequences** | | | | | |
| | None | 20 | 9 | 21.43 | |
| | Some, but no danger to life | 50 | 25 | 59.52 | |
| | Significant, with danger to life | 12 | 8 | 19.05 | 0.47 |
| **Substance use** | | | | | |
| | None | 67 | 34 | 80.95 | |
| | Deterioration of capacity | 11 | 6 | 14.29 | |
| | Intentional to facilitate attempt | 4 | 2 | 4.76 | 0.97 |

### 4.5.3. Psychiatric history

Data regarding current and previous psychiatric history and history of suicide attempts is represented in Table 4.17.

History of psychiatric treatment:

A history of previous psychiatric treatment was predictive of better adherence to aftercare treatment. Only 39% of patients who had no previous history psychiatric contact adhered to treatment. In contrast, 71% of those patents that had been treated psychiatrically previously adhered to follow-up.

History of suicide attempts

In comparison to a history of previous psychiatric treatment, although patients with a history of previous suicide attempts specifically tended to be less adherant to follow-up, this result was not significant (p=0.78).

Current treatment

Current psychiatric treatment was one of the strongest predictors of aftercare adherence subsequent to a suicide attempt (p=0.0002). In stark contrast to those who were not receiving treatment at the time of the attempt, almost all patients who were being treated psychiatrically followed the aftercare plan. The two patients who did not adhere to follow-up despite receiving psychiatric treatment prior to the attempt were being followed-up at their local clinic.

**Table 4.17. Predictors of adherence to follow-up: Psychiatric history**

n = number of patients who had a follow-up plan
n Ad = number of patients who adhered to follow-up plan
% Ad = percentage contribution of category towards adherence

| **Previous psychiatric contact** | n | nAd | %Ad | p-value |
|---|---|---|---|---|
| Yes | 31 | 22 | 52.38 | |
| No | 51 | 20 | 47.62 | **0.047** |
| **Current psychiatric contact** | | | | |
| Yes | 20 | 18 | 42.86 | |
| No | 62 | 24 | 57.14 | **0.0002** |
| **Previous suicide attempt** | | | | |
| Yes | 43 | 19 | 45.24 | |
| No | 39 | 23 | 54.76 | 0.18 |

### 4.5.4. Diagnosis

The data for diagnosis as a predictor of follow-up is represented in Table 4.18. Diagnosis as a category was predictive of adherence to follow-up (p=0.05). Each specific diagnosis was considered and only major depressive episode (or disorder) was strongly predictive of attendance with follow-up (p=0.03). Sample sizes for certain diagnoses (such as conduct disorder and anxiety disorder) may be too small to allow for comment in this study.

### 4.5.5. Referral centre

At p=0.04, the type of centre to which the patient was referred for follow-up management was predictive of further attendance (Table 4.18.). Seventy five percent of patients who were given follow-up appointments for the PEU and 77% of patients referred to private psychiatric services attended their aftercare appointments. In contrast, only 39% of patients followed-up on their referral to a local clinic. Despite the fact that patients were referred to the PEU half as often as to the local clinic, the PEU contributed, in terms of percentage, as much to follow-up adherence as local clinic. Other services, which included a number of governmental and non-governmental services such as drug counselling, family counselling and specialised psychiatric out-patient departments, also had poor attendance at 38% (Table 4.18.).

**Table 4.18. Diagnosis and follow-up plan**

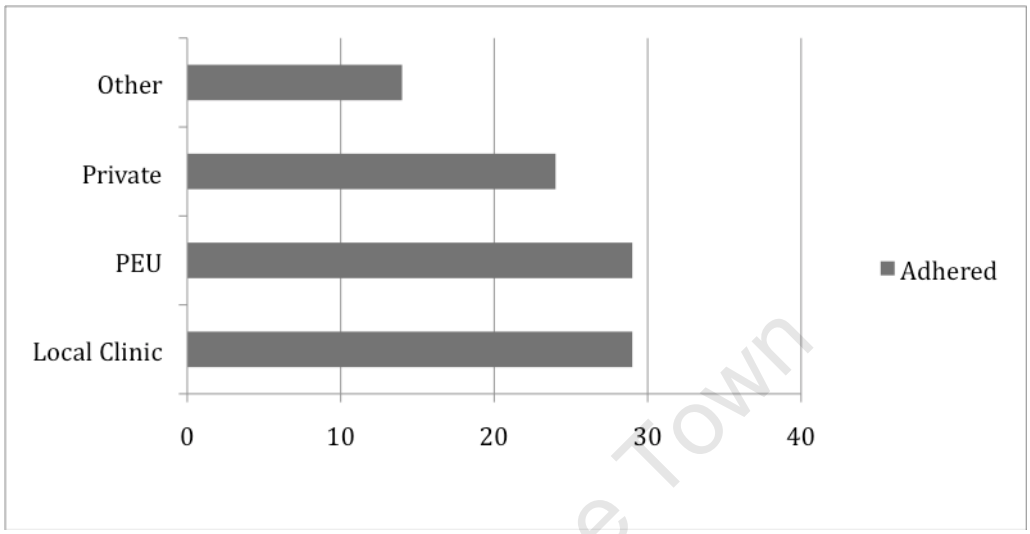
n = number of patients who had a follow-up plan
n Ad = number of patients who adhered to follow-up plan
% Ad = percentage contribution of category towards adherence

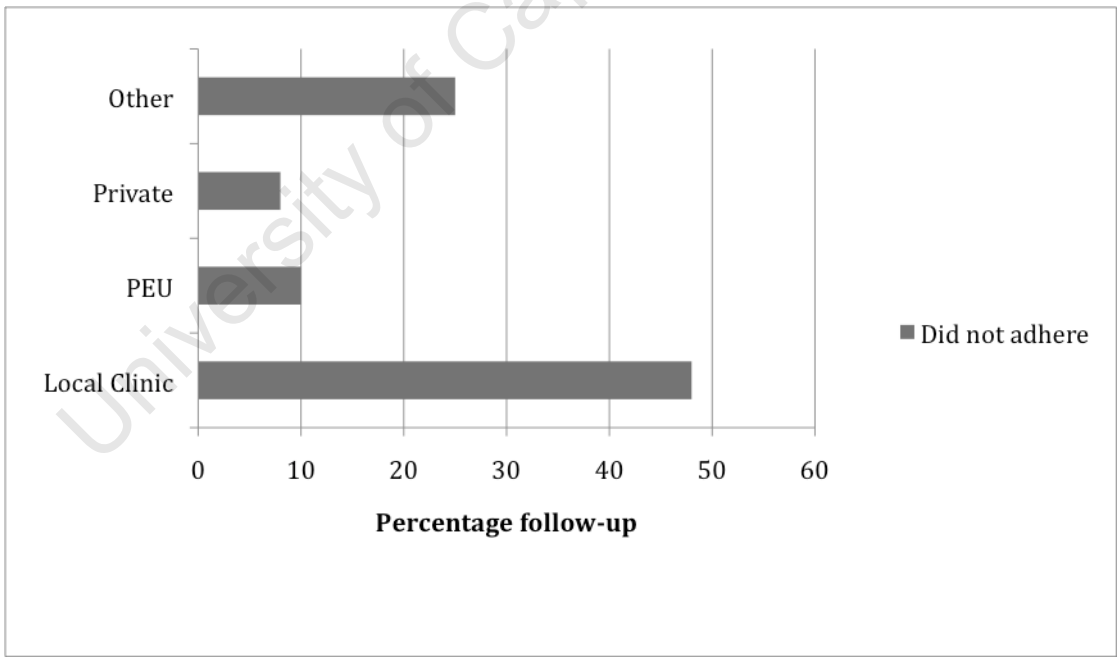
| Variable | n | n Ad | % Ad | P-value |
|---|---|---|---|---|
| **Diagnosis** | | | | |
| Adjustment disorder | 20 | 9 | 25.71 | |
| Major depressive disorder | 25 | 19 | 54.29 | **0.03** |
| Substance related disorder | 14 | 4 | 11.43 | |
| V-code | 13 | 3 | 8.57 | |
| | | | | **0.05** |
| **Follow-up centre** | | | | |
| Return to PEU | 16 | 12 | 28.57 | |
| Local clinic | 31 | 12 | 28.57 | |
| Private service | 13 | 10 | 12.81 | |
| Other | 16 | 6 | 14.29 | **0.04** |

**Table 4.19. Major Depressive disorder/episode as a predictor of adherence**

| Analysis | Chi-square | df | P-value |
|---|---|---|---|
| **Pearson Chi-square** | 13.25 | 3 | 0.004 |
| **M-L Chi-square** | **13.88** | **3** | **0.003** |

**Figure 4.1. Referral centre as a predictor of adherence (p=0.04):**



## 4.6. Multivariate logistic regression

When the variables that were significant in the bivariate analysis were placed in a multivariate logistic regression model, a number of variables remained significant. The following results were obtained:

**Table 4.20. Predictors of adherence to follow-up: Multivariate logistic regression**

| Variables | Odds ratio | CI (95%) |
|---|---|---|
| **Age** (continuous) | 1.03 | 0.98-1.08 |
| **Prevent intervention** | | |
| No | Reference | |
| Yes | 1.22 | 0.39-3.79 |
| **Previous psychiatric treatment** | | |
| No | Reference | |
| Yes | 1.99 | 0.65-6.06 |
| **Current psychiatric treatment** | | |
| No | Reference | |
| Yes | 9.15 | 1.78-47.18 |
| **Psychiatric diagnosis** | | |
| Other | Reference | |
| Major depression | 2.83 | 0.94-8.51 |

# CHAPTER 5: DISCUSSION

## 5.1. Summary of results

This study aims to examine adherence rates and predictors of adherence to follow-up after a suicide attempt among the patient population of the PEU of Groote Schuur Hospital, Cape Town. Underlying the study is the hypothesis that socio-demographic factors and the nature of the suicide attempt predict adherence with follow-up subsequent to a suicide attempt.

In this chapter we will discuss the results section (Chapter 4) in relation to the aims of the study. In particular the diagnostic and socio-demographic profile of patients presenting to the PEU following a suicide attempt; the characteristics of their suicide attempts; the characteristics on initial assessment of those patients who adhered to follow-up to those who did not; and implications for policy, practice and future research.

By identifying patients who are at high risk of non-attendance, findings from this research could form the basis for recommendations for interventions targeted at improving adherence with follow-up.

The mean age of the sample was 30.24. Consistent with other studies looking at gender differences in suicide attempts, more women suicide attempters presented to the PEU (67%) compared to men. The patients referred to the PEU came from 7 different Cape Town Health sub-districts with only 3 of the 7 being appropriate referral areas for the PEU itself.

Regarding the nature of the suicide attempt, patients were most likely to attempt suicide at home, in the evening, using readily accessible over the counter and prescription medication with the most commonly used medications being analgesics and psychotropic medication. Most attempts exhibited little planning and a significant number of attempts were motivated by reasons other than wanting to die. For 19% of patients, alcohol or illicit drugs had a direct relation to their

suicide attempt either taken intentionally to facilitate and implement the suicide attempt or used sufficiently to have caused deteriorated capacity. Alcohol was by far the most commonly used substance at the time of the attempt (89%). One third of patients had a history of previous psychiatric contact and 20% were receiving psychiatric treatment at the time of the suicide attempt. The most common diagnosis was adjustment disorder (30%) followed by major depression in 25% of patients. Eighteen percent of patients received a V-code diagnosis and 16% had a substance related disorder.

Of the 100 patients recruited for this study, follow-up plans were made for 82 patients, with a subsequent follow-up adherence rate of 51%. Of the socio-demographic factors, age was a strong predictive factor of adherence (p=0.018). If patients took greater precautions to avoid intervention during the attempt they were more likely to adhere to follow-up (p=0.029). Similarly, patients who have a history of previous psychiatric treatment (p=0.047) and patients who were receiving psychiatric treatment at the time of the attempt (p=0.0002) were both predictive of adherence to follow-up. A diagnosis of major depressive disorder was predictive of subsequent adherence to follow-up (p=0.05). In the multivariate logistic regression model, the variable most likely to predict adherence to follow-up was current psychiatric diagnosis, although variables that were significant on bivariate analysis retain their clinical significance.



### 5.2. Sample size

The study comprised 100 patients who presented to the PEU after a suicide attempt and did not include patients who required immediate in-patient psychiatric care. As described in Chapter 2 (Literature Review), other study sizes vary from 25 patients (Burgess et al, 1998) to 647 (Spooren et al, 1998). The studies with larger sample sizes are more likely to be retrospective case record reviews (Blake and Mitchell, 1978; Nordentoft and Sogaard, 2005), interventional studies (Spooren et al, 1998), or studies that look at adherence rates only without considering related predictors (Sokero et al, 2008). The sample size of this study is in keeping with others that have looked at adherence rates and predictors of adherence after a suicide attempt with other studies specifically focussing on predictors of adherence

having had sample sizes ranging from 50 (Taylor and Stansfeld, 1983) to 232 (Jauregui et al, 1999).

### 5.3. Socio-demographic characteristics

The mean age of the sample was 30.24 (SD 11.9) years, which is younger than in other reviewed studies where the mean ranges between 31.1 (Jauregui et al, 1999) and 40.8 (Suominen et al, 1998). The most likely reason for a younger mean is that adolescents comprised 15% of the sample and, although the sample allowed for the inclusion of geriatric patients, just one patient was over the age of 60. Also, in cross-national epidemiological studies the most consistently reported age pattern of suicide attempts is that the risk of first onset for suicidal behavior increases significantly at the start of adolescence (12 years), peaks at age 16 years, and remains elevated into the early 20s which is consistent with this sample (Nock et al, 2008). Adolescence and early adulthood are subsequently regarded as the times of greatest risk for first onset of suicidal behavior (Kessler et al, 1999).

Consistent with other studies looking at gender differences in suicide attempts, more women suicide attempters presented to the PEU (67%) compared to men, However, statistics suggest that men are more likely to complete a suicide attempt which suggests that the male:female ratio for suicide attempts may more likely be a reflection of gender differences in health-seeking behaviour rather than overall suicide risk (Nordentoft, 2007). Just over half (51%) of the patients in this study were single, 30% married or living with their partner and 14% divorced or widowed. The inclusion of adolescents may have resulted in a relatively high number of single patients compared to studies with adult patient only (Suominen et al, 1998). Forty five percent of patients were unemployed and most (85%) did not complete high school.

Findings from this study are compatible with international socio-demographic risk factors for suicidal behaviours including not being married, female gender, lower achieved educational level, and unemployment (Platt et al, 1992; Weissman et al, 1999).

The patients referred to the PEU came from 7 different Cape Town Health sub-districts with only 3 of the 7 being appropriate referral areas for the PEU itself. One reason for this may be that patients perceive the wait at Groote Schuur hospital to be shorter and medical care better than at local community clinics and hospitals. Another reason may be that, because Groote Schuur hospital is one of only two Cape Town general public hospitals offering a specialised emergency psychiatric service, management of the suicide attempt may be seen as 'better' than at the appropriate local hospital where specialised psychiatric services are not available.

## 5.4. Nature of the suicide attempts

### 5.4.1. Method, planning and intent

Patients were most likely to attempt suicide at home, in the evening, using readily accessible over the counter and prescription medication with the most commonly used medications being analgesics and psychotropics (including hypnotics). Most attempts exhibited little planning (79%) and a significant number of attempts (44%) were motivated by reasons other than wanting to die such as anger, wanting a temporary rest or wanting to prove a point. Impulsivity and high emotional reactivity are recognized risk factors for suicidal behaviour both of which may increase psychological distress to a point that is regarded as unbearable thereby precipitating a suicide attempt (Zouk et al, 2006).



However, planning and intent was evident in a significant number of patients. Approximately one-fifth (22%) of patients planned the attempt so that intervention from others would be unlikely, 31% took precautions to prevent intervention and 13% organised their affairs before attempting suicide. The degree of medical intervention required subsequent to the suicide attempt was not related to the degree of planning and intent. Therefore, it is important to reiterate that patients who have a history of impulsive suicide attempt remain at elevated risk of completed suicide and adverse psychosocial outcomes.

### 5.4.2. Substance use

For 19% of patients, alcohol or illicit drugs had a direct relation to their suicide attempt either taken intentionally to facilitate and implement the suicide attempt or

used sufficiently to have caused deteriorated capacity. Alcohol was by far the most commonly used substance at the time of the attempt (89%). The link between alcohol misuse and suicidal behaviour is well described and there are a number of postulated reasons for the association. Through its promotion of adverse life events and actions as a central nervous system depressant, alcohol may predispose to suicide attempts with both behaviours possibly sharing a common genetic susceptibility (Brady J., 2006). Alcohol intoxication may also precipitate suicide attempts by compromising problem-solving skills and exacerbating impulsive personality traits. Appropriate interventions for substance abuse and dependence may be an effective way to reduce suicide rates.

### 5.4.3. History of suicide attempts

A high percentage of patients (41%) had attempted suicide previously with an average of 1.84 (SD1.15) previous attempts. Studies have shown that up to 60% of patients who attempt suicide repeat the attempt at a later stage (Hawton and Fagg, 1988); the majority of repeats occurring in the first 6 months (Schmidtke et al, 1996). Similarly, in this sample more than half (57%) of repeat attempts occur within 1 year of the previous attempt. The risk of death among suicide attempters is 3.3 times greater than expected of the general population statistics, with suicide being the major factor contributing to the increased risk (Hawton and Fagg, 1988). Indeed, in this sample 44% of patients who had attempted suicide previously had done so multiple times. 12% of previous attempts occurred over 10 years prior to the presenting suicide attempt.

### 5.4.4. Previous and current psychiatric treatment

One third of patients had a history of previous psychiatric contact and 20% were receiving psychiatric treatment at the time of the suicide attempt. As mentioned, risk factors for completed suicide appear to vary over time and an elevated suicide risk in the first year after a suicide attempt is well described. However, studies show that suicide risk remain elevated for over a decade after a suicide with a significant risk factor in these patients being a history of psychiatric treatment (Suokas et al, 2001). These findings suggest that long-term management of suicide attempter needs to be considered even in an acute setting.

## 5.5. Diagnostic profile

Based on psychology autopsy studies, a psychiatric disorder is believed to be present in up to 95% of people who die by suicide (Nock et al, 2008). In particular, mood, personality, psychotic, alcohol and substance use disorders are high risk factors for suicide and suicidal behavior (Nock et al, 2008).

In this study, the most common diagnosis was adjustment disorder (30%) followed by major depression in 25% of patients. Eighteen percent of patients received a V-code diagnosis and 16% had a substance related disorder. Only the primary clinical diagnosis on either axis 1 or axis 2 was recorded in this study. Therefore, if a patient was diagnosed with a V-code or an adjustment disorder it is possible that co-morbid disorders or impulsivity and emotional reactivity difficulties may not have been considered.

## 5.6. Adherence rate

Of the 100 patients recruited for this study, follow-up plans were made for 82 patients. Attendance of follow-up for those patients was roughly split equally between those that attended (51%) and those that did not attend follow-up (49%). A large non-attendance rate is not unusual for this type of study. Other follow-up studies looking at suicide attempters have shown a wide variation in adherence rates, ranging from 20 – 84% in adults and between 33% (King et al, 1997) to 95.4% (Rotheram-Borus et al, 1999) in adolescents.

## 5.7. Predictors of adherence with follow-up

### 5.7.1. Socio-demographic factors

Of the socio-demographic factors, age was a strong predictive factor of adherence ($p=0.018$), but categorised age groups were not significant. The PEU of Groote Schuur hospital has a research advantage of seeing a spectrum of age groups including adolescents and the elderly. Unfortunately only 12 adolescent patients and 1 geriatric patient were recruited and, as a result, each categorised age group had too small a sample size to relate to adherence. One can however infer that suicide attempters who adhere are likely to be older (average age 33.3 years) than those that do not adhere (average age 27.2 years). Interestingly, patients on a disability grant for psychiatric illness were not more likely to adhere to follow-up

than those who were not on a grant. However, there were only 6 patients on a disability grant and with a small sample size, it is difficult to draw an inference from this result. Other socio-demographic factors including gender, level of education, marital status, religion and amenities did not show a significant effect on adherence. This is corroborated by a number of adolescent studies that have found no clear socio-demographic predictors of treatment attendance (Taylor and Stansfeld, 1984; Spirito et al, 1994).

### 5.7.2. Nature of the suicide attempt

Although planning of the attempt, intent and perception of the probability of intervention as reported by the patient did not impact on the probability of follow-up, greater actual precautions taken to avoid intervention, did have a significant impact (p=0.029). The patients that took either active or passive precautions to prevent intervention, for example waiting till everyone was asleep, or locking the door, were more likely to follow-up with after-care. Although, how the nature of the suicide attempt impacts on future adherence to treatment has been poorly researched, Taylor and Stansfeld (1983) did find that adolescents who were more suicidal were more likely to adhere to therapy.

On the other hand, patients who used substances at the time of the attempt intentionally to facilitate and implement the attempt or sufficiently to cause deterioration in capacity were not more likely to adhere to follow-up (p=0.97). Although diagnostic and referral confounders have been excluded, it is possible that the assessing doctor, out of added concern, may have been more aggressive in the management of these patients and impressed the need for follow-up.

### 5.7.3. Psychiatric history

Patients who have a history of previous psychiatric treatment were more likely to adhere to follow-up treatment than those that did not have a history (p=0.047). A previous study by Suominen et al (2000) also found that patients with personality disorders were more likely to adhere to follow-up after a suicide attempt if they had a lifetime history of psychiatric treatment.

Previous suicide attempts, however, were not predictive of adherence to further psychiatric follow-up (p=0.78). This result is somewhat surprising, given that previous psychiatric treatment was predictive of adherence. There may be a number of reasons for this, some of which may lie in the assessing doctor's approach to a patient who presents with repeat suicide attempts. A study by Hengeveld et al (1988) suggested that psychiatric consultants might not pay enough attention to repeat suicide attempters perhaps due to their own negative or pessimistic beliefs towards recidivistic behaviour. It is possible that the assessing doctor may underestimate the value of a more extensive diagnostic and management conversation in these patients and thereby do not impress on the patient the importance of follow-up.

### 5.7.4. Current psychiatric treatment

One of the strongest predictors of aftercare adherence subsequent to a suicide attempt was current psychiatric treatment (p=0.0002). In stark contrast to those who were not receiving treatment at the time of the attempt, almost all patients who were being treated psychiatrically followed the aftercare plan. It has been suggested that patients do not adhere to follow-up after a suicide attempt because they may not consider mental health centres suitable to treat their problems (Jauregui et al, 1999). It may be that patients who adhere to psychiatric treatment at the time of a suicide attempt, perceive psychiatric help as useful and therefore are more likely to continue with treatment after the suicide attempt. This theory is substantiated by a study by Granboulan et al (2001) who found that therapy given to hospitalised adolescents predicted further follow-up with treatment.

### 5.7.5. Diagnosis

**Major Depressive disorder**

Diagnosis as a category was predictive of adherence to follow-up (p=0.05). However, of all the specific diagnoses, only major depressive episode (or disorder) was strongly predictive of attendance with follow-up (p=0.03). Both attempted suicide and major depression are known significant risk factors for completed suicide (Harris and Barraclough, 1997) and a suicide attempt during an episode of major depression is a particularly high risk factor (Nordstrom et al, 1995).

Although Burns et al (2008) found that adolescent affective disorders were predictive of medication non-compliance, results from other studies concur that depression is a predictor of adherence to follow-up care in adults (Suominen et al, 1998) and adolescents (Taylor and Stanfeld, 1983; Rotheram-Borus et al, 1999; Granboulan et al, 2001). In fact, a study by Sokero et al (2008), found that depressed patients who had attempted suicide were no more likely to miss initial appointments than depressed patients without suicidal behaviour. This is a particularly important detail since treating major depressive disorder is central to suicide prevention. Although depressed suicidal patients may have favourable attitudes towards psychiatric treatment in the acute setting, continuity of treatment is vital. Long-term adherence to medication and psychiatric treatment in the depressed patient who attempts suicide is a topic that requires further research.

**Other diagnoses**

In this study, no specific diagnosis besides major depressive disorder was predictive of follow-up adherence. Sample sizes for certain diagnoses (such as conduct disorder and anxiety disorder) may be too small to allow for comment in this study. Studies describing the contribution of other disorders (besides major depressive disorder) to post-attempt adherence have shown inconsistent results. Although Rotheram-Borus et al (1999) and Burns et al (2008) both found anxiety disorders to be negative predictors of compliance, Granboulan et al (2001) described adolescent suicide attempters with anxiety to be more likely to comply.

Similarly, variable results are seen in the relationship between disruptive behaviour disorders and substance use with follow-up adherence. Burns et al (2008) reported that disruptive behaviour disorder and substance dependence predicted medication non-adherence at 6 months follow-up, in contrast to some studies that describe attempters with disruptive behaviour disorders (Rotheram-Borus et al, 1999) and those that abuse illicit substance as being more likely to comply (Granboulan et al, 2001).

### 5.7.6. Follow-up centre

The type of centre to which the patient was referred for follow-up management was predictive of further attendance. Attendance of those patients who were meant to return for follow-up at the PEU was high at 75%. Similarly, 77% of patients referred to private psychiatric services attended their aftercare appointments. In contrast, only 39% of patients followed-up on their referral to a local clinic. Other services, which comprised a number of governmental and non-governmental services such as family counselling, drug counselling and specialised psychiatric out-patient departments, also had poor attendance at 38%.

There could be a number of reasons for these results. All patients requested to attend the PEU for follow-up were given specific follow-up dates for within a week of the initial presentation. Fixed appointments and systematic case tracking procedures have been shown to significantly improve follow-up rates (Piacentini et al, 1995). Similarly, patients referred to private psychiatric services were more likely to be tracked if appointments were missed.

As primary care facilities, local government clinics are arguably cost-effective services. However, local clinics are often short of skilled staff including psychiatric nurses, doctors with psychiatric training, counsellors and social workers. The wait for patients needing to be assessed can be long especially if the patient does not have an appointment with a particular contact person and patients are more likely to "slip through the net".

Furthermore, continuity of care appears to be an important factor in maintaining compliance (Runeson and Wasserman, 1994). In fact, a study by Torhorst et al (1988), showed continuity of care to be the only factor leading to significant increase in compliance. A review of pathways to care of adolescent suicide attempters in Australia by Hazell (2003) found a 75-80% attendance at community follow-up centres, which is high compared to this and other studies. The author postulated that the high rate of follow-up was because of a strong working relationship between the community and hospital based mental health services. Additionally, a member of the hospital service regularly attended meetings with the

community health team at which all referrals and outcomes were reviewed. It is possible that adherence rates at local clinics may improve if some of these suggestions are considered.

### 5.7.7. Multivariate logistic regression

In the multivariate logistic regression model, the variable most likely to predict adherence to follow-up was current psychiatric diagnosis. This remained significant even when adjusted for age and diagnosis. Patients with major depression are 2.83 times more likely to attend aftercare, while patients with a history of psychiatric treatment are almost twice as likely to adhere to follow-up treatment. Although age is no longer statistically significant in a multivariate regression model, age remains a clinically significant factor. In the bivariate analysis, older age groups were more likely to attend follow-up suggesting that younger age groups may need to be flagged for possible non-adherence.

## 5.8. Implications for policy and practice

Adherence to follow-up at local clinics was poor in this study but the results also suggest that adherence could improve by providing fixed appointment dates with a specific person at a follow-up centre. Improved communication between the referring hospital and the community clinic has been shown to have a positive impact on adherence (Hazell, 2003). Furthermore, education programs at primary health care workers have shown significant reductions in suicide rates (Szanto et al, 2007; Henrikson and Isacsson, 2006). Methods to improve communication in the South African context between the facility managing suicide behaviour and the follow-up centre need to be considered.

Although the study focused on predictors of adherence, the alarming pervasive use of over-the-counter and prescription medication as the most common method of attempting suicide warrants mentioning. Means-restriction programs can decrease suicide rates by up to 23 percent and needs further research and policy review in this country (Oliver, 1972).

Suicide attempts are a significant public health concern because of repeat attempts, completed suicide, chronic psychiatric symptoms, and ongoing psychosocial difficulties. Given the increasing emphasis on cost-effective health care, interventions that improve adherence to follow-up need to be carefully examined. We need to examine what works and what does not in the management of suicide attempt patients and thereby identify strategies for shifting organisational norms, set realistic expectations for patients and streamline procedures for psychiatric care.

## 5.9. Study limitations

One of the limitations of this study is the exclusion of patients requiring further acute in-patient psychiatric care. Since the in-patient ward of the PEU is a short-stay facility, admitted patients are often referred to one of a number of other hospitals for further in-patient management and subsequent care is difficult to monitor and follow-up. As mentioned in Chapter 2 (the Literature Review), post-attempt hospitalisation is associated with better adherence. It is therefore less likely that by excluding admitted patients, the study obtained better adherence rates.

It is possible that some predictors of adherence were not found to be significant because the sample size was 100 participants. For example, age was a strong predictive factor of adherence (p=0.018), but categorised age groups were not significant. A larger sample with greater recruitment of extremes of age could be useful. Also, inter-related factors tend to be smaller in magnitude than main factors and non-significant findings for certain inter-related factors may be due to low power.

Not all potential patients were recruited due to the limitation of using busy registrars to implement the questionnaires at the PEU. Again, due to logistical problems it is difficult to establish how many patients were not recruited into the study. This was an unfinanced study and although it would have been preferable to administer a structured diagnostic assessment questionnaire to establish the

subjects' diagnoses, there were manpower and financial restrictions preventing us from doing so. Other potential variables that may affect adherence to follow-up, such as stigma and personality factors were not fully assessed and identified in the questionnaire.

As discussed in the literature review, different adherence rates and predictors of adherence have been identified for adults and adolescents. Although this study specified the adherence rates for adolescents and adults, the sample size was too small to identify different predictors of adherence for the different age categories.

### 5.10. Future research recommendations

The next generation of studies in the area of suicide research needs to continue to move beyond known risk factors and prevalence rates. Below are several under-explored areas of research that could begin to address some of the gaps in our understanding and management of patients who attempt suicide.

A key next step is for this study to be replicated with a larger, consecutively recruited sample that includes patients that required admission as well as sub-populations that were under-represented, particularly adolescents and the elderly. Adherence is a multifarious concept and further studies are needed focusing on long-term adherence and follow-up. It is noteworthy that patients with depression are more likely to adhere to the initial follow-up appointment, but whether these high-risk patients remain adherent to treatment thereafter requires further research.

Predictors of adherence to treatment follow-up may or may not be specific to suicide attempters. Since this study was primarily focussed on understanding follow-up factors in patients who attempt suicide, whether or how predictors vary for other patients requiring emergency psychiatric care was not considered. Future research with psychiatric comparison groups could address this issue.

## 5.11. Conclusions

This study set out to examine adherence rates and predictors of adherence to follow-up after a suicide attempt. In this study of 100 patients, almost half did not adhere to the initial follow-up appointment - a result consistent with other studies in the literature. Given that a diagnosable psychiatric disorder was common among those who attempted suicide, appropriate psychiatric or psychological follow-up should be considered an important part of further management. If out-patient psychiatric treatment is effective, it could make an important contribution to the secondary prevention of further suicide attempts and a potential decrease in morbidity and mortality. This offers a challenge to professional services in formulating, establishing and assessing interventions subsequent to a suicide attempt.

Among the noteworthy findings is that depression and a history of current and previous psychiatric treatment were predictive of further follow-up. This may be interpreted as follow-up reaching those that most need it. However, patients who impulsively attempt suicide without a primary psychiatric diagnosis may also be at risk of further suicide attempts, morbidity and mortality. For those patients, it may be that further psychiatric follow-up may not be seen as beneficial or worth the stigma associated with receiving psychiatric treatment. This requires further research and exploration of the patients' explanatory models of their presentation.

Other researchers who have looked at age and gender and treatment adherence have reached conflicting conclusions. In this study, although age categories were not predictive of adherence, older patients were more likely to adhere to treatment. The implication of this remains unclear and further studies with larger sample sizes (including the extremes of age) are indicated.

Factors such as choice of follow-up centre may contribute to the patient's decision whether or not to adhere to treatment. There was a stark contrast in adherence rates between those patients who were referred to local clinics and those who were referred to private psychiatric services or asked to return to the PEU. The finding that patients that were referred to their local clinic were less likely to adhere to

follow-up indicates the importance of identifying and managing service barriers at local clinics as well as establishing open lines of communication between clinics and emergency units.

Given that suicide attempts are a significant public health concern because of an increased risk of repeated attempts, completed suicide and ongoing psychiatric symptoms these findings are significant. Further research is clearly indicated to understand health-seeking behaviour in patients subsequent to a suicide attempt and the beliefs that prevent individuals from seeking medical care. This study allows for limited comment on the efficacy of the initial assessment and further management offered. The opportunity for a prospective randomised interventional study with longitudinal follow-up remains.

## References

American Psychiatric Association (1994). *Diagnostic and Statistical Manual for mental disorders (4th Edition).* Washington DC: American Psychiatric Association.

Blouin, A., Perez, E., & Minoletti, A. (1985). Compliance to referrals from the psychiatric emergency room. *Canadian Journal of Psychiatry.Revue Canadienne De Psychiatrie*, 30(2), 103-106.

Brady, J. (2006). The association between alcohol misuse and suicidal behaviour. *Alcohol and Alcoholism* (Oxford, Oxfordshire), 41(5), 473-478.

Burgess, S., Hawton, K., & Loveday, G. (1998). Adolescents who take overdoses: Outcome in terms of changes in psychopathology and the adolescents' attitudes to care and to their overdose. *Journal of Adolescence*, 21(2), 209-218.

Burns, C. D., Cortell, R., & Wagner, B. M. (2008). Treatment compliance in adolescents after attempted suicide: A 2-year follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry,* 47(8), 948-957.

Burrows, S., Vaez, M., Butchart, A., & Laflamme, L. (2003). The share of suicide in injury deaths in the south african context: Sociodemographic distribution. *Public Health,* 117(1), 3-10.

De Moore GM, Robertson AR. (1996). Suicide in the 18 years after deliberate self-harm: A prospective study. *Br J Psychiatry,* (169), 489-494.

Desjarlais, R., Eisenberg, L., Good, B., Kleinman, A., eds. (1995) *World Mental Health: problems and priorities in low-income countries.* Oxford: Oxford University Press, 3–33.

Donaldson, D., Spirito, A., & Esposito-Smythers, C. (2005). Treatment for adolescents following a suicide attempt: Results of a pilot trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* 44(2), 113-120.

Efron, B & Tibshirani, R. (1993). *An introduction to the bootstrap.* London: Chapman and Hall.

Goldsmith, S. K., Pellmar, T. C., & Kleinman, A. M. (Eds.). (2002). *Reducing suicide: A national imperative.* Washington, DC: National Academies Press.

Granboulan, V., Rabain, D., & Basquin, M. (1995). *The outcome of adolescent suicide attempts.* Acta Psychiatrica Scandinavica, 91(4), 265-270.

Harrington, R., Kerfoot, M., Dyer, E., Mcniven, F., Gill, J., Harrington, V., et al. (2000). Deliberate self-poisoning in adolescence: Why does a brief family

intervention work in some cases and not others? *Journal of Adolescence*, 23(1), 13-20.

Harris, E. C., & Barraclough, B. (1997). Suicide as an outcome for mental disorders. A meta-analysis. *The British Journal of Psychiatry : The Journal of Mental Science,* 170, 205-228.

Hawton, K., & Fagg, J. (1988). Suicide and other causes of death following attempted suicide. *Br J Psychiatry,* (152), 259-266.

Hawton, K., & Fagg, J. (1992). Deliberate self-poisoning and self-injury in adolescents. A study of characteristics and trends in oxford, 1976-89. The *British Journal of Psychiatry: The Journal of Mental Science,* 161, 816-823.

Hazell, P. (2003). Establishment and evaluation of a clinical pathway for young suicide attempters and ideators. *Australasion Psychiatry,* 11(2), 54-58.

Hengeveld, M. W., Kerkhof, A. J., & van der Wal, J. (1988). Evaluation of psychiatric consultations with suicide attempters. *Acta Psychiatrica Scandinavica,* 77(3), 283-289.

Henriksson, S., & Isacsson, G. (2006). Increased antidepressant use and fewer suicides in jamtland county, sweden, after a primary care educational programme on the treatment of depression. *Acta Psychiatrica Scandinavica,* 114(3), 159-167.

Jauregui, J., Martinez, M. L., Rubio, G., & Santo-Domingo, J. (1999). Patients who attempted suicide and failed to attend mental health centres. *European Psychiatry : The Journal of the Association of European Psychiatrists,* 14(4), 205-209.

Katz, L. Y., Cox, B. J., Gunasekara, S., & Miller, A. L. (2004). Feasibility of dialectical behavior therapy for suicidal adolescent inpatients. *Journal of the American Academy of Child and Adolescent Psychiatry,* 43(3), 276-282.

Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the national comorbidity survey. *Archives of General Psychiatry,* 56(7), 617-626.

Kigozi, F. (2003). Challenges to the current provision of mental health services and development of psychiatry in Africa. *South African Journal of Psychiatry, 9, 26-28.*

King, C. A., Hovey, J. D., Brand, E., Wilson, R., & Ghaziuddin, N. (1997). Suicidal adolescents after hospitalization: Parent and family impacts on treatment follow-through. *Journal of the American Academy of Child and Adolescent Psychiatry,* 36(1), 85-93.

King, C. A., Segal, H., Kaminski, K., Naylor, M. W., Ghaziuddin, N., & Radpour, L. (1995). A prospective study of adolescent suicidal behavior following hospitalization. *Suicide & Life-Threatening Behavior,* 25(3), 327-338.

Kjellander, C., Bongar, B., & King, A. (1998). Suicidality in borderline personality disorder. *Crisis*, 19(3), 125-135.

Matas, M., Staley, D., Klar, J., & Lwanga, S. (1992). A profile of the noncompliant patient: A thirty month review of outpatient psychiatric referrals. *General Hospital Psychiatry*, 1, 124-130.

Mathers, C. D., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine,* 3(11), e442.

Moller, H. J. (1989). Efficacy of different strategies of aftercare for patients who have attempted suicide. *Journal of the Royal Society of Medicine,* 82(11), 643-647.

Moosa, M.Y.H., Jeenah, F.Y., Vorster, M. (2005). Repeat non-fatal suicidal behaviour at Johannesburg Hospital. *South African Journal of Psychiatry*, 11 (3), 84-88.

Morgan, H. G., Barton, J., Pottle, S., Pocock, H., & Burns-Cox, C. J. (1976). Deliberate self-harm: A follow-up study of 279 patients. *The British Journal of Psychiatry : The Journal of Mental Science,* 128, 361-368.

Murray, C. L., & Lopez, A. D. (Eds.). (1996). *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020.* Cambridge, MA: Harvard University Press.

Nock, M. K., Borges, G., Bromet, E. J., Alonso, J., Angermeyer, M., Beautrais, A., et al. (2008). Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *The British Journal of Psychiatry : The Journal of Mental Science,* 192(2), 98-105.

Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., & Lee, S. (2008). Suicide and suicidal behavior. *Epidemiologic Reviews*, 30, 133-154.

Nordentoft, M., Breum, L., Munck, L. K., Nordestgaard, A. G., Hunding, A., & Laursen-Bjaeldager, P. (1993). High mortality by natural and natural causes: A 10-year follow-up study of patients admitted to a poisoning treatment centre after suicide attemots. *Br Med J,* (306), 1637-1641.

Nordentoft, M., & Sogaard, M. (2005). Registration, psychiatric evaluation and adherence to psychiatric treatment after suicide attempt. *Nordic Journal of Psychiatry,* 59(3), 213-216.

Nordstrom, P., Samuelsson, M., & Asberg, M. (1995). Survival analysis of suicide risk after attempted suicide. *Acta Psychiatrica Scandinavica,* 91(5), 336-340.

O'Carroll, P. W., Berman, A. L., Maris, R. W., Moscicki, E. K., Tanney, B. L., & Silverman, M. M. (1996). Beyond the tower of babel: A nomenclature for suicidology. *Suicide & Life-Threatening Behavior,* 26(3), 237-252.

Oliver, R. G. (1972). Rise and fall of suicide rates in Australia: Relation to sedative availability. *The Medical Journal of Australia,* 2(21), 1208-1209.

Piacentini, J., Rotheram-Borus, M. J., Gillis, J. R., Graae, F., Trautman, P., Cantwell, C., et al. (1995). Demographic predictors of treatment attendance among adolescent suicide attempters. *Journal of Consulting and Clinical Psychology,* 63(3), 469-473.

Pillay, A.L. Wassenaar, D.R., Kramers, A.L. (2004). Attendance at psychological consultations following non-fatal suicidal behaviour: An ethical dilemma. *South African Journal of Psychology,* 34(3), 350-363.

Platt, S., Bille-Brahe, U., Kerkhof, A., Schmidtke, A., Bjerke, T., Crepet, P., et al. (1992). Parasuicide in europe: The WHO/EURO multicentre study on parasuicide. I. introduction and preliminary analysis for 1989. *Acta Psychiatrica Scandinavica*, 85(2), 97-104.

Rotheram-Borus, M. J., Piacentini, J., Cantwell, C., Belin, T. R., & Song, J. (2000). The 18-month impact of an emergency room intervention for adolescent female suicide attempters. *Journal of Consulting and Clinical Psychology,* 68(6), 1081-1093.

Rotheram-Borus, M. J., Piacentini, J., Van Rossem, R., Graae, F., Cantwell, C., Castro-Blanco, D., et al. (1999). Treatment adherence among latina female adolescent suicide attempters. *Suicide & Life-Threatening Behavior,* 29(4), 319-331.

Rotheram-Borus, M. J., Piacentini, J., Van Rossem, R., Graae, F., Cantwell, C., Castro-Blanco, D., et al. (1996). Enhancing treatment adherence with a specialized emergency room program for adolescent suicide attempters. *J Am Acad Child Adolesc Psychiatry,* 35(5): 654-663.

Runeson, B., & Wasserman, D. (1994). Management of suicide attempters: What are the routines and the costs? *Acta Psychiatrica Scandinavica,* 90(3), 222-228.

Sadik, N. Global development challenges: the population dimension. (1992). In: Kirdar U, ed. *Change, threat or opportunity.* Vol 4: Social change. United Nations Development Program. New York: UN Publications, 13–29.

Schmidtke, A., Bille-Brahe, U., DeLeo, D., Kerkhof, A., Bjerke, T., Crepet, P., et al. (1996). Attempted suicide in europe: Rates, trends and sociodemographic characteristics of suicide attempters during the period 1989-1992. results of the WHO/EURO multicentre study on parasuicide. *Acta Psychiatrica Scandinavica,* 93(5), 327-338.

Silverman, M. M. (2006). The language of suicidology. *Suicide & Life-Threatening Behavior,* 36(5), 519-532.

Silverman, M. M., Berman, A. L., Sanddal, N. D., O'carroll, P. W., & Joiner, T. E. (2007). Rebuilding the tower of babel: A revised nomenclature for the study of suicide and suicidal behaviors. part 1: Background, rationale, and methodology. *Suicide & Life-Threatening Behavior,* 37(3), 248-263.

Skogman, K., Alsen, M., & Öjehagen, A. (2004). Sex differences in risk factors for suicide after attempted suicide—a follow-up study of 1052 suicide attempters. *Soc Psychiatry Psychiatr Epidemiol,* (39), 113-120.

Sokero, P., Melartin, T., Rytsala, H., Leskela, U., Lestela-Mielonen, P., & Isometsa, E. (2008). Adequacy of, attitudes toward, and adherence to treatments by suicidal and nonsuicidal depressed patients. *The Journal of Nervous and Mental Disease,* 196(3), 223-229.

Spirito, A., Boergers, J., Donaldson, D., Bishop, D., & Lewander, W. (2002). An intervention trial to improve adherence to community treatment by adolescents after a suicide attempt. *Journal of the American Academy of Child and Adolescent Psychiatry,* 41(4), 435-442.

Spirito, A., Bond, A., Kurkjian, J., Devost, L., Bosworth, T., & Brown, L. K. (1993). Gender differences among adolescent suicide attempters. *Crisis,* 14(4), 178-184.

Spooren, D., Van Heeringen, C., & Jannes, C. (1998). Strategies to increase compliance with out-patient aftercare among patients referred to a psychiatric emergency department: A multi-centre controlled intervention study. *Psychological Medicine,* 28(4), 949-956.

StatSoft Inc. (2007). *STATISTICA (data analysis software system)*, version 8. www.statsoft.com.

Suominen, K. H., Isometsa, E. T., Henriksson, M. M., Ostamo, A. I., & Lonnqvist, J. K. (1998). Inadequate treatment for major depression both before and after attempted suicide. *The American Journal of Psychiatry,* 155(12), 1778-1780.

Suominen, K. H., Isometsa, E. T., Henriksson, M. M., Ostamo, A. I., & Lonnqvist, J. K. (2000). Suicide attempts and personality disorder. *Acta Psychiatrica Scandinavica,* 102(2), 118-125.

Szanto, K., Kalmar, S., Hendin, H., Rihmer, Z., & Mann, J. J. (2007). A suicide prevention program in a region with a very high suicide rate. *Archives of General Psychiatry,* 64(8), 914-920.

Taylor, E. A., & Stansfeld, S. A. (1984). Children who poison themselves. II. prediction of attendance for treatment. *The British Journal of Psychiatry : The Journal of Mental Science,* 145, 132-135.

Torhorst, A., Burk, F., Kurz, A., Wachter, C., & Moller, H. J. (1988). Motivation for compliance with outpatient treatment of patients hospitalized for parasuicide. In

H. J. Moller, A. Schmidtke & R. Wellz (Eds.*), Current issues of suicidology.* Berlin: Springer Verlag.

Trautman, P. D., Stewart, N., & Morishima, A. (1993). Are adolescent suicide attempters noncompliant with outpatient care? *Journal of the American Academy of Child and Adolescent Psychiatry,* 32(1), 89-94.

van der Sande, R., Buskens, E., Allart, E., van der Graaf, Y., & van Engeland, H. (1997). Psychosocial intervention following suicide attempt: A systematic review of treatment interventions. *Acta Psychiatrica Scandinavica,* 96(1), 43-50.

Weissman, M. M., Bland, R. C., Canino, G. J., Greenwald, S., Hwu, H. G., Joyce, P. R., et al. (1999). Prevalence of suicide ideation and suicide attempts in nine countries. *Psychological Medicine,* 29(1), 9-17.

Wilson, D.A.B., Flisher, A.J., Welman, M. Psychiatric emergency service users at Groote Schuur Hospital, Cape Town. (2005). *South African Journal of Psychiatry,* 11(3), 80-83.

WHO (2002). *Multisite Intervention Study on Suicidal Behaviours SUPRE-MISS: Protocol of SUPRE-MISS.* World Health Organization: Geneva.

World Health Organization. (1996). *Prevention of suicide: Guidelines for the formulation and implementation of national strategies.* Geneva, Switzerland: World Health Organization.

World Health Organization. (2009). *Suicide prevention (SUPRE).* http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/, accessed January 22, 2009.

World Medical Association. (2000*). Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects as revised by the 52nd WMA General Assembly, Edinburgh, Scotland*. http://www.wma.net/e/policy/b3.htm, accessed October 21, 2008.

Zouk, H., Tousignant, M., Seguin, M., Lesage, A., & Turecki, G. (2006). Characterization of impulsivity in suicide completers: Clinical, behavioral and psychosocial dimensions. *Journal of Affective Disorders,* 92(2-3), 195-204.

# Appendix

## 1. Consent Form:

| | |
|---|---|
| TITLE OF RESEARCH: | Predictors of adherence with follow-up subsequent to a suicide attempt |
| INVESTIGATOR: | Laila Asmal: MBChB, Dept of Psychiatry and Mental Health, University of Cape Town |

Note:
For patients under the age of 18 years, the parent or legal guardian must sign the consent form in addition to obtaining the assent of the minor.

For patients under the age of 18 years, the use of the term "You" refers to "You or Your Child" and addresses both the patient and the parent or legal guardian.

For patients who are unable to give consent due to their mental state, the next of kin must sign the consent form in addition to obtaining the assent of the patient.



### *Explanation of Procedures*

You are being asked to be part of a research study looking at patients who come to C23 after a suicide attempt.

If you decide to participate, you will be asked a few more questions than you would normally have been asked by the doctor seeing you. These questions will be questions about the suicide attempt, the place where you live and about how you have been feeling in the past few days. This may take a few more minutes of your time but will not affect the treatment the doctor would have given you if you had not been part of the study.

The study is trying to see which patients find the help we offer at C23 helpful and which do not. For us to work that out, we will contact the place we have referred you to after a month.

### *Drawbacks of being in the study*

You will need to spend a few more minutes of your time with your doctor answering questions about the suicide attempt, the place where you live and about how you have been feeling in the past few days.

### *Benefits of being in the study*

Spending extra time with your doctor may give you the opportunity to discuss issues about how you have feeling that you otherwise may not have been asked. Your participation will also provide valuable information on how we can help other patients who have also attempted suicide.

### *Alternatives*

You may choose not to participate in the study. This will not affect your treatment at C23.

### *Confidentiality*

The information gathered during this study will be kept confidential. However, Dr Asmal who is running this project, will be able to inspect your medical records and have access to confidential information that identifies you by name. The results of the assessment, treatment and follow-up, may be published for scientific purposes; however your identity will not be revealed.

### *Withdrawal Without Prejudice*

You are free to withdraw your consent and to discontinue participation in this project at any time without prejudice against further care that you may receive.

### *Cost of Participation*

There will be no cost to you for participating in the research. The costs of your usual medical care will be billed to you and/or medical aid in the usual way.

### *Payment for Participation in Research*

There is no compensation for participation in this study.

### *Questions*

If you have any questions about the study, Dr. Asmal will be glad to answer them. Dr. Asmal's daytime telephone number is 021 4042155. You may leave a message for her at that number after hours.

### *Legal Rights*

You are not waiving any of your legal rights by signing this consent form.

***Signatures***

Your signature below indicates that you agree to participate in this study.

| | |
|---|---|
| Signature of Patient or<br>legal guardian (if minor) or next of kin<br>(if diminished capacity) | Date |
| Signature of Interviewing Doctor | Date |
| Signature of Witness | Date |

## 2. Information sheet for doctors:

Thank you for your assistance in this project!

The aim of this research is to see how we can improve the service we offer to our largest patient base – patients who have attempted suicide.

What you need to do:

1) All suicide attempt patients should be offered to participate in the study except patients who are to be admitted into C23.

2) Take a confidential folder from the tray marked "suicide study" in the nurses' station.
Write the patients name and folder number in the book in the tray REGARDLESS OF WHETHER THE PATIENT CONSENTS OR NOT. This may have already been done by the ward clerk on weekdays.

3) Obtain patient's consent to the study.
**Two forms** need to be signed –
One copy is given to the patient and the other stays in the file.
If a patient is unable to consent, but does assent to the study, the parent/legal guardian must sign consent. If the patient is under 18, he/she needs to assent and parent/legal guardian consent.

4) There are three questionnaires outlining:
- socio-demographic details
- the nature of the suicide attempt
- diagnosis and follow-up plan

5) Most questions in the questionnaire would have been covered by you during routine assessment. Please formally go through them before the patient has left the consulting room.

Should you have any difficulty or query please call me on my mobile: 0845569881 or email me at laila_asmal@yahoo.co.uk

Thanks!

Laila Asmal

## 3. Socio-demographic questionnaire:

Please cross appropriate box:

Patient's name _____

Sex: ☐ Male ☐ Female

Date of birth: _ _ _ _ _ _

Address: _ _ _ _ _ _ _ _ _ _

Tel nr: _ _ _ _ _ _ _ _ _ _ _ _

Present marital status:
☐ Single
☐ Married or living with permanent partner; since when:
☐ Widowed; since when:
☐ Divorced / separated; since when:

Number of people in household: _ _ _ _

Monthly income of household: _ _ _ _ _

Available amenities within household:
☐ Running water
☐ Sanitation
☐ Electricity
☐ Telephone (either house telephone or patient's own cellphone)

Employment:
☐ Full-time employed
☐ Part-time employed
☐ Unemployed; since when:
☐ Student; specify type
☐ Disabled; since when:
☐ Retired; since when:
☐ Other, specify _____

Level of education completed:
☐ None
☐ Primary education; specify grade
☐ Secondary education; specify grade

☐ University or Technicon education
☐ Other

What is your religious denomination? _ _ _ _ _ _ _ _ _ _ _ _

Is religion an important support in your life?
☐ No
☐ Yes

**4. Nature of suicide attempt questionnaire:**

Date of suicide attempt: _ _ Day _ _ Month _ _ _ _ Year

Day of the week: _ _ _ _ _ _ _ _ _ _

Time: _ _ _ _ _ _

Place: _ _ _ _ _ _ _ _ _ _

Method: (If overdose, specify type/s and amount of substance/s ingested)_ _ _ _ _ _ _

Was there someone available to intervene in the attempt?
☐ Timed so that intervention was probable
☐ Timed so that intervention was not likely
☐ Timed so that intervention was highly unlikely
☐ Did not think about it

Did the patient do anything to actively prevent interventions?
☐ No precautions at all
☐ Passive precautions but doing nothing to prevent their intervention (e.g. being alone in room with unlocked door)
☐ Active precautions (e.g. being alone in room with locked door)

Did the patient inform anyone about the attempt?
☐ No
☐ Yes If yes, specify _ _ _ _

Did the patient try to get his/her affairs in order (eg. write a will) or leave a suicide note?
☐ No
☐ Yes If yes, specify _ _ _ _

Was the attempt planned for some time?
☐ No preparation (no plan)
☐ Minimal or moderate preparation
☐ Extensive preparation (detailed plan)

At the time of the attempt, did the patient want to live or die?
☐ Did not want to die
☐ Did not care whether he/she lived or died
☐ The patient wanted to die

According to the patient, what did he/she want to accomplish by the attempt?
☐ Mainly to prove a point

☐ Temporary rest
☐ Death
☐ Other, specify: _____

At the time of the attempt, what did the patient think the chances were of dying?
☐ Did not think about it
☐ Thought that death was unlikely
☐ Thought that death was possible but not probable
☐ Thought that death was certain

Relation between alcohol/drug use (specify type: _____) and current suicide attempt:
☐ none/some previous ingestion, but without relation to the suicide attempt
☐ sufficient for the deterioration of capacity and responsibility
☐ intentional intake to facilitate and implement the suicide attempt

Regarding the physical consequences and the danger to life for the attempted suicide:
☐ no significant physical harm, no medical treatment required
☐ medical attention/surgery required, but no danger to life
☐ medical attention/surgery required, had/has danger to life

Do you have the opportunity to talk about your problems to someone that you trust?
☐ No
☐ Yes

Previous suicide attempt/s:
☐ No
☐ Yes If yes, how many? _ _ When was the last one? _ _
Method of previous suicide attempt _ _

Previous contact with psychiatric services:
☐ No
☐ Yes If yes, specify _ _ _ _

Current psychological/psychiatric treatment:
☐ No
☐ Yes If yes, specify _ _ _ _

## 5. Diagnosis and follow-up plan questionnaire:

Diagnosis according to DSM IV _ _ _ _ _ _ _ _

After psychiatric assessment, patient was referred to:

☐ was not referred to any follow-up centre

☐ was requested to return to C23 for follow-up; specify date

☐ was referred to local clinic; specify name and follow-up date

☐ was referred to private professional service; specify details

☐ was given contact details of relevant services if suicide ideation recurs; give details _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

☐ was admitted to C23

☐ other; give details _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Patient's response to offer of professional care:

☐ Patient not referred to a specific follow-up centre
☐ Patient accepts to attend follow-up
☐ Patient is not sure if he/she will attend or not
☐ Patient refuses to attend follow-up
☐ Other, please specify _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _