Patient Factors that Predict Admission to an Emergency Psychiatric Unit following Deliberate Self-Harm in an Urban Hospital in South Africa

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TABLE OF CONTENTS

DECLARATION

I, Kathryn Grobler, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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ABSTRACT

Background: Suicidal behaviour is increasingly widespread in South Africa and constitutes a significant burden of disease, often within resource-constrained hospital settings. Little is known about the factors associated with psychiatric admission following an act of deliberate self-harm (DSH) in South Africa.

Aim: The aim of this study was to investigate the sociodemographic and clinical factors which differentiated DSH patients who were admitted to an emergency psychiatric unit compared to those who were treated in the emergency department and discharged.

Setting: Data were collected for 272 consecutive patients presenting to the emergency department of a tertiary, public, urban hospital in South Africa, as a result of self harm, between 16 June 2014 and 29 March 2015, for an initial epidemiological study of DSH at the hospital. This study had a data subset of 174 of those patients (84 admitted to the emergency psychiatric unit and 90 treated in the emergency department and discharged).

Methods: This study was a retrospective cross-sectional analysis, and it analysed existing data from the epidemiological study, using bivariate and multivariate logistic regression analysis.

Results: Of the patients admitted to the emergency psychiatric unit, a greater proportion of patients were female (61,9%), were not in a relationship (83,3%), had no dependents (60,7%), were unemployed (73,8%), and had a low socioeconomic status (59,5%). Having dependants was associated with an increased likelihood of admission to the emergency psychiatric unit in bivariate analysis; however, when controlling for other sociodemographic variables, this was no longer significant. None of the clinical variables were significantly associated with admission to the emergency psychiatric unit.

Conclusion: The lack of significant findings in the sociodemographic and clinical factors associated with an admission to the emergency psychiatric unit (compared to being treated in the emergency department and discharged) is surprising. At face value, it suggests that there are no obvious differences between the two groups. The use of a validated screening tool or more accurate measure of the clinical correlates (e.g. screening tool for substance-related

disorders) could have better highlighted, perhaps subtle, differences between the two groups. It is perhaps more important to question whether the perceived risk factors in DSH patients are associated with suicidal behaviour and whether emergency psychiatric unit admission, based on these factors, is more effective at treating DSH short-term, and reducing suicidal behaviour long-term, than say outpatient-based treatment interventions. Clinician-related factors that influence psychiatric admission decisions following DSH is also an important area for future research.

Key Words: patient factors; psychiatric admission; hospitalisation, deliberate self-harm; suicide attempt

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ABBREVIATIONS

APA – American Psychiatric Association

DSH – deliberate self-harm

ED – emergency department

EPU – emergency psychiatric unit

PSIS – Pierce Suicidal Intent Scale

RRRS – Risk-Rescue Rating Scale (Weisman & Worden)

SA – South Africa

SES – socioeconomic status

SIS – Suicide Intent Scale (Beck's)

LIST OF TABLES

Chapter 2

CHAPTER 1: INTRODUCTION AND LITERATURE REVIEW

Introduction

Suicide is recognised as a global public health priority, with close to 800 000 people dying annually due to suicide, and the second leading cause of death among 15 to 29-year-olds globally in 2016 (Naghavi, 2019). Suicide is thus one of the priority conditions in the World Health Organisation Mental Health Gap Action Programme, which provides guidance on service provision for mental, neurological and substance use disorders (WHO, 2016).

Suicidal behaviour is a public health problem globally. Suicidal behaviour is increasing in South Africa and is a significant burden of disease. It is a "complex phenomenon and risk factors are multifactorial and multidimensional" (Schlebusch, 2012) (p437). South Africa is a country characterised by high levels of psychological distress and a high estimated lifetime prevalence of psychiatric disorders, with relatively early onset of these disorders (Stein, et al., 2008). There is a dearth of mental healthcare services in the country, especially in the constrained, government-funded public sector healthcare system which serves about 84% of the population, and which spends only 5% of the total annual public health budget on mental healthcare (Docrat, Besada, Cleary, Daviaud, & Lund, 2019). Approximately 6 500 suicides and 130 000 suicide attempts occur annually in South Africa (Burrows & Schlebusch, 2008). In our study we looked at factors that make someone at risk of suicide more likely to be admitted to an emergency psychiatric unit, proposing that while there was an overlap with the risk factors for suicide, the factors were not the same.

For the purposes of our study, deliberate self-harm (DSH) is defined as an intentional act with non-fatal outcome in which an individual deliberately engages in self-injurious behaviour with the intention of ending their life (Platt, et al., 1992). Historically there have been challenges in definitions in suicidology, with resulting confusion, with the terms 'parasuicide', 'attempted suicide' and 'deliberate self-harm or self-poisoning' found to be problematic and inadequate. The latest terminology proposed by the WHO/EURO Multicentre Study is 'non-fatal suicidal behaviour, with or without injuries' (De Leo, Burgis, Bertolote, Kerkhof, & Bille-Brahe, 2006). The new outcome-based terms, 'fatal' and 'non-fatal' suicidal behaviour are intended to be non-judgemental, culturally-sensitive and descriptive. The term DSH was used in our study for

continuity sake, as the same term had been used in the larger, completed epidemiological study, of which our study formed part.

Our study was conducted in an urban hospital and every patient presenting to the emergency department (ED) with DSH was assessed by an ED doctor. The assessment included gauging the severity of the injury, providing necessary medical support, evaluating mental health problems and continuing risk of self-harm, and determining the appropriate disposition of the patient. Patients deemed to be at low risk of further self-harm were discharged from the ED by the ED doctor, and those assessed as being at medium to high risk of ongoing self-harm were referred to psychiatry. The psychiatry doctor then decided whether the patient required admission to the emergency psychiatric unit (EPU).

Literature review

This literature review will begin by describing the scales that are used to measure suicidal behaviours and suicidal intent. It will then explore the available literature on patient factors, both sociodemographic and clinical, that are associated with psychiatric admission following DSH. Lastly some of the non-clinical factors associated with such an admission will be mentioned.

Suicide rating scales

The Pierce Suicidal Intent Scale (PSIS) was used in the ED to assess suicide risk. This is a clinician administered self-report instrument composed of 12 questions assessing aspects of suicidal intent, such as the patient's perception of the lethality of their self-harm, efforts to isolate oneself so as to avoid being rescued, writing a suicide note, and regret at having survived the act (Pierce, 1977). PSIS scores range from a minimum of zero to a maximum of 25, with scores of zero to three indicating low intent, four to six indicating moderate intent and scores greater than 11 indicating high suicidal intent. Although it is recommended practice for the PSIS to be administered to all self-harm patients treated at the hospital, it was found that these were done for just over half of the patients (Bantjes, et al., 2017).

Various other suicide clinical rating scales exist. The Weisman and Worden Risk-Rescue Rating Scale (RRRS) is used to assess the severity of suicide attempts using five risk and five

rescue factors. The five risk factors are: agent used, impaired consciousness, lesions/toxicity, reversibility and treatment required. The five rescue factors are: location of attempt, person initiating rescue, probability of discovery by any rescuer, accessibility to rescue and delay until discovery (Weisman & Worden, 1972). The Beck's Suicide Intent Scale (SIS) is a validated, semi-structured, interviewer administered assessment scale consisting of 15 items. The scale consists of two sections, the first of which is objective, and in the second section, subjective characteristics of the suicide attempt are evaluated. Scoring is classified as follows: less than 10 points "low-intent", 10-15 points "intermediate-intent" and more than 15 points "high-intent" suicides (Beck, Schuyler, & Herman, 1974).

Suicide clinical rating scales have limited usefulness in the assessment of suicidal risk and have largely been discredited. While clinical rating scales cannot predict suicide in the individual, nor accurately assess suicide risk, and strict cut-off scores should not be used to determine admission to hospital, they should be used as an adjunct to suicide risk assessment (Cochrane-Brink, Lofchy, & Sakinofsky, 2000). A study that included the five rescue factors of the Weisman and Worden Risk-Rescue Rating Scale (RRRS), in its explanatory variables, found that only one of the factors (delay until discovery of more than one hour) was a significant predictor of psychiatric admission – again highlighting the limited clinical usefulness of suicide rating scales (Miret, et al., 2011). Statistical models predicting hospitalisation decisions which were based on the Beck's Suicide Intent Scale (SIS) score/items had lower specificity and sensitivity when compared to those based on clinical variables (Baca-García, et al., 2004).

In our study the PSIS was considered as nothing more than an independent clinical variable. The international literature identifies several patient factors, both sociodemographic and clinical, that were associated with psychiatric admission following DSH.

Sociodemographic and clinical factors

Gender

Globally more males die by suicide than females; in contrast more females than males attempt suicide and generally more females are admitted to hospital for suicide attempts (Hawton & Van Heeringen, 2000). The WHO/EURO multicentre study confirms a higher female rate of

suicide attempts, with a median female to male ratio of 1.5:1 (Platt, et al., 1992). Male gender is an independent predictor of suicide risk (Cooper, Lawlor, Hiroeh, Kapur, & Appleby, 2003), as well as of high-intent suicide attempts (Sudhir Kumar, Mohan, Ranjith, & Chandrasekaran, 2006). Male gender was one of the variables found to predict EPU admission following a suicide attempt (Miret, et al., 2011). A local study of gender differences and medical service utilisation among DSH patients seeking treatment, conducted at the same urban hospital as this study, found that females were approximately 2.5 times more likely than males to be treated in the ED and discharged. Males were 1.8 times more likely to be admitted to the EPU (Bantjes, et al., 2017).

Relationship status

High-intent suicide attempters, classified using Beck's SIS, admitted to a general hospital were significantly more likely to be single and male. They also had significantly higher lethality and recent stressful life-event scores (Sudhir Kumar, Mohan, Ranjith, & Chandrasekaran, 2006). Living alone was also found to be independently associated with being admitted (Jimenez-Trevino, et al., 2015).

History of DSH/suicide attempt

The American Psychiatric Association (APA)'s "Practice Guideline for the Assessment and Treatment of Patients With Suicidal Behaviours" suggests several factors favouring inpatient hospitalisation for suicidal patients with a psychiatric disorder, including past attempts, psychosis, and persistent or specific suicidal plans with high lethality or intent (Association, 2004).

Goldberg and colleagues (2007) examined the discriminant value of suicide risk factors for predicting hospitalisation among patients with suicidal ideation seen in an urban psychiatric emergency service, and to what extent these factors corresponded to those identified by the APA practice guideline. The resulting logistic regression model involved a combination of three independent variables that best predicted hospitalisation: having a specific suicide plan, the presence of current psychosis and a history of past suicide attempt (Goldberg, Ernst, & Bird, 2007). A suicide attempt in the year prior to hospital admission was associated with

increased odds of hospitalisation (Baca-García, et al., 2004), as was a previous history of suicide attempts (Jimenez-Trevino, et al., 2015).

Substance use

People without a substance-related disorder were more likely to be admitted to an EPU after a suicide attempt (Miret, et al., 2011). A French study focussing on the impact of alcohol use disorder on hospitalisation decisions found that suicide intent, a past history of suicide attempts, bipolar disorder and depression were found to be associated with psychiatric admissions after a suicide attempt. Despite alcohol use disorder being known to be associated with increased suicide risk, it was not linked with psychiatric admission, and nor was a positive blood alcohol concentration in the ED (Salles, Calonge, Franchitto, Bougon, & Schmitt, 2018).

One conflicting study reported that drug or alcohol consumption during the attempt was found to be one of the main variables associated with decision to hospitalise (Baca-García, et al., 2006).

Level of suicidal intent

A multicentre DSH monitoring study done in Manchester found that the three most important independent predictors of suicide risk, assessed by ED doctors, were: current mental state, high suicidal intent (including seriousness of attempt) and male gender. Background risk factors such as social adversity and psychiatric history carried less weight (Cooper, Lawlor, Hiroeh, Kapur, & Appleby, 2003). In another multicentre study done in Spain, intent of the suicidal behaviour was the factor with the greatest association with admission (Jimenez-Trevino, et al., 2015). Suicide planning was a predictor of EPU admission (Miret, et al., 2011).

Method of DSH

Adult suicide attempters who used or planned to use a potentially lethal method, such as jumping, hanging or burning, were more likely to be hospitalised, regardless of the actual harm done (Baca-García, et al., 2004), (Miret, et al., 2011). A DSH method not involving drug overdose was more likely to be associated with EPU admission (Jimenez-Trevino, et al., 2015).

History of psychiatric illness

People with a diagnosis of schizophrenia (or other psychotic disorder), mood disorder or personality disorder were independently more likely to be admitted to psychiatric hospitals after attempted suicide (Jimenez-Trevino, et al., 2015), (Suominen & Lonnqvist, 2006). A history of psychiatric inpatient treatment or previous psychiatric hospitalisation was also associated with admission following a suicide attempt (Baca-García, et al., 2004), (Miret, et al., 2011).

Patients with borderline personality disorder often have chronic suicidal tendencies with repetitive acts of self-harm. One in ten patients with borderline personality disorder completes suicide (Paris, 2002). Hospitalisation is of unproven value in preventing suicide in these patients and can sometimes have negative effects. Repeated admissions are often ineffective and counterproductive. Suicidal risk is not a contraindication for outpatient management and a clinician's fear of potential litigation resulting from a completed suicide should not be the reason for admission (Paris, 2002).

Young people (age 7-24 years) with a diagnosis of a mental disorder, particularly depression, and those that were prescribed a psychotropic medication were more likely to be admitted following DSH (Olfson, Gameroff, Marcus, Greenberg, & Shaffer, 2005).

Other factors

Other factors from the literature that predicted EPU admission were: lack of family support (Baca-García, et al., 2006), low psychosocial functioning (Baca-García, et al., 2004), low expectations for being found after the attempt (Baca-García, et al., 2004), somatic illness (Suominen & Lonnqvist, 2006), and older age (Hepp, Moergeli, Trier, Milos, & Schnyder, 2004). Another factor was attitude toward the attempt, and specifically an intention to repeat (Baca-García, et al., 2004), (Baca-García, et al., 2006). The patient's attitude toward the suicide attempt, especially not verbalising adequate criticism of the attempt, was found to be the best predictor of hospitalisation (Miret, et al., 2011).

Non-clinical factors

Admission to an EPU, or referral to a psychiatric hospital for admission, following DSH most commonly occurred when patients presented during daytime hours (Arensman, et al., 2018) or on a weekday (Suominen & Lonnqvist, 2006). It was found that the different treatment practices of EDs/hospitals also influence treatment decisions and admission rates (Suominen & Lonnqvist, 2006) and there is significant hospital variation in DSH treatment practices (Arensman, et al., 2018).

Summary

Several sociodemographic and clinical factors associated with psychiatric hospitalisation following DSH have been identified in the international literature, with recurring sociodemographic factors being: male gender; older age; living alone; unemployment; low psychosocial functioning; and single marital status. Recurring clinical factors are: a psychiatric disorder, especially depression or schizophrenia; previous psychiatric hospitalisation; not having a substance-related disorder; lack of alcohol consumption preceding attempt; use of a potentially lethal method, aggressive or violent means, or a method not involving drug overdose. In addition to these are previous attempts (especially within the last year) or history of suicide spectrum behaviours; ongoing suicidal ideation, intent or planning; presence of current psychosis; and the patient's expressed intent regarding the attempt and attitude toward the attempt.

Baca-Garcia concluded that psychiatrists appear to place more weight on patients' self-reporting in deciding on admission, focussing on details of the DSH attempt and future plans, rather than on demographic, diagnostic or psychosocial factors. In addition, clinical assessment was found to be superior to the use of a suicide intent scale or similar research tool-based assessment (Baca-García, et al., 2004). A triage based only on sociodemographic and clinical characteristics, as well as suicide risk factors, could result in too frequent admissions of patients following suicide attempt (Hepp, Moergeli, Trier, Milos, & Schnyder, 2004).

Study rationale

This study identified a gap in the research literature, certainly in the South African context. The 'statistical' risk factors for suicide are well-recognised: over 45 years, male, divorced or widowed, unemployed, socially isolated, chronic illness, substance abuse, psychosis, severe depression, severe personality disorder, multiple previous suicide attempts, having an available and lethal method. The factors that make someone at risk of suicide more likely to be admitted to an EPU have not been described. It is these risk factors that this study explored. We proposed that there was overlap with the risk factors for suicide, but that the factors were not the same.

Given the high reported rates of DSH in South Africa and the resource-constrained public health care system, patient factors predicting psychiatric admission following DSH was deemed an important area for research which could inform future guidelines and recommendations to improve outcomes and better allocate resources.

Aims and objectives

The aim of this study was to investigate the sociodemographic and clinical factors which differentiated DSH patients who were admitted to an EPU compared to those who were treated in the ED and discharged. The objectives were to determine associations between being admitted to an EPU (as opposed to being treated in ED and discharged) following an act of DSH and:

1) sociodemographic factors (gender, relationship status, number of dependents, completed level of education, employment status and socioeconomic status)
2) clinical factors (method of DSH, substance use at the time of DSH, chronic substance use, level of suicidal intent, level of consciousness, suicidal compared to non-suicidal self-injury, history of DSH)
3) stated intentions of DSH and stated reasons for DSH.

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CHAPTER 2: PUBLICATION-READY JOURNAL MANUSCRIPT

ARTICLE TITLE

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REVIEW JOURNAL

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In our study the PSIS was considered as nothing more than an independent clinical variable. The international literature identifies several patient factors, both sociodemographic and clinical, that were associated with psychiatric admission following DSH.

Sociodemographic and clinical factors

Gender

Male gender is an independent predictor of suicide risk (Cooper, Lawlor, Hiroeh, Kapur, & Appleby, 2003), as well as of high-intent suicide attempts (Sudhir Kumar, Mohan, Ranjith, & Chandrasekaran, 2006). Male gender was one of the variables found to predict admission to an emergency psychiatric unit (EPU) following a suicide attempt (Miret, et al., 2011). A local study of gender differences and medical service utilisation among DSH patients seeking treatment, conducted at the same urban hospital as this study, found that females were approximately 2.5 times more likely than males to be treated in the ED and discharged. Males were 1.8 times more likely to be admitted to the EPU (Bantjes, et al., 2017).

Relationship status

High-intent suicide attempters, classified using Beck's SIS, admitted to a general hospital were significantly more likely to be single and male. They also had significantly higher lethality and recent stressful life-event scores (Sudhir Kumar, Mohan, Ranjith, & Chandrasekaran, 2006). Living alone was also found to be independently associated with being admitted (Jimenez-Trevino, et al., 2015).

History of DSH/suicide attempt

The American Psychiatric Association (APA)'s "Practice Guideline for the Assessment and Treatment of Patients With Suicidal Behaviours" suggests several factors favouring inpatient hospitalisation for suicidal patients with a psychiatric disorder, including past attempts, psychosis, and persistent or specific suicidal plans with high lethality or intent (Association, 2004).

Goldberg and colleagues (2007) examined the discriminant value of suicide risk factors for predicting hospitalisation among patients with suicidal ideation seen in an urban psychiatric emergency service, and to what extent these factors corresponded to those identified by the APA practice guideline. The resulting logistic regression model involved a combination of three independent variables that best predicted hospitalisation: having a specific suicide plan, the presence of current psychosis and a history of past suicide attempt (Goldberg, Ernst, & Bird, 2007). A suicide attempt in the year prior to hospital admission was associated with increased odds of hospitalisation (Baca-García, et al., 2004), as was a previous history of suicide attempts (Jimenez-Trevino, et al., 2015).

Substance use

People without a substance-related disorder were more likely to be admitted to an EPU after a suicide attempt (Miret, et al., 2011). A French study focussing on the impact of alcohol use disorder on hospitalisation decisions found that suicide intent, a past history of suicide attempts, bipolar disorder and depression were found to be associated with psychiatric admissions after a suicide attempt. Despite alcohol use disorder being known to be associated with increased suicide risk, it was not linked with psychiatric admission, and nor was a positive blood alcohol concentration in the ED (Salles, Calonge, Franchitto, Bougon, & Schmitt, 2018).

One conflicting study reported that drug or alcohol consumption during the attempt was found to be one of the main variables associated with decision to hospitalise (Baca-García, et al., 2006).

Level of suicidal intent

A multicentre DSH monitoring study done in Manchester found that the three most important independent predictors of suicide risk, assessed by ED doctors, were: current mental state, high suicidal intent (including seriousness of attempt) and male gender. Background risk factors such as social adversity and psychiatric history carried less weight (Cooper, Lawlor, Hiroeh, Kapur, & Appleby, 2003). In another multicentre study done in Spain, intent of the suicidal behaviour was the factor with the greatest association with admission (Jimenez-Trevino, et al., 2015). Suicide planning was a predictor of EPU admission (Miret, et al., 2011).

Method of DSH

Adult suicide attempters who used or planned to use a potentially lethal method, such as jumping, hanging or burning, were more likely to be hospitalised, regardless of the actual harm done (Baca-García, et al., 2004), (Miret, et al., 2011). A DSH method not involving drug overdose was more likely to be associated with EPU admission (Jimenez-Trevino, et al., 2015).

History of psychiatric illness

People with a diagnosis of schizophrenia (or other psychotic disorder), mood disorder or personality disorder were independently more likely to be admitted to psychiatric hospitals after attempted suicide (Jimenez-Trevino, et al., 2015), (Suominen & Lonnqvist, 2006). A history of psychiatric inpatient treatment or previous psychiatric hospitalisation was also associated with admission following a suicide attempt (Baca-García, et al., 2004), (Miret, et al., 2011).

Patients with borderline personality disorder often have chronic suicidal tendencies with repetitive acts of self-harm. One in ten patients with borderline personality disorder completes suicide. Hospitalisation is of unproven value in preventing suicide in these patients and can sometimes have negative effects. Repeated admissions are often ineffective and counterproductive (Paris, 2002).

Other factors from the literature that predicted EPU admission were: lack of family support (Baca-García, et al., 2006), low psychosocial functioning (Baca-García, et al., 2004), low

expectations for being found after the attempt (Baca-García, et al., 2004), somatic illness (Suominen & Lonnqvist, 2006), and older age (Hepp, Moergeli, Trier, Milos, & Schnyder, 2004). Another factor was attitude toward the attempt, and specifically an intention to repeat (Baca-García, et al., 2004), (Baca-García, et al., 2006). The patient's attitude toward the suicide attempt, especially not verbalising adequate criticism of the attempt, was found to be the best predictor of hospitalisation (Miret, et al., 2011).

Non-clinical factors

Admission to an EPU, or referral to a psychiatric hospital for admission, following DSH most commonly occurred when patients presented during daytime hours (Arensman, et al., 2018) or on a weekday (Suominen & Lonnqvist, 2006). It was found that the different treatment practices of EDs/hospitals also influence treatment decisions and admission rates (Suominen & Lonnqvist, 2006) and there is significant hospital variation in DSH treatment practices (Arensman, et al., 2018).

In summary, several sociodemographic and clinical factors associated with psychiatric hospitalisation following DSH have been identified in the international literature, with recurring sociodemographic factors being: male gender; older age; living alone; unemployment; low psychosocial functioning; and single marital status. Recurring clinical factors are: a psychiatric disorder, especially depression or schizophrenia; previous psychiatric hospitalisation; not having a substance-related disorder; lack of alcohol consumption preceding attempt; use of a potentially lethal method, aggressive or violent means, or a method not involving drug overdose. In addition to these are previous attempts (especially within the last year) or history of suicide spectrum behaviours; ongoing suicidal ideation, intent or planning; presence of current psychosis; and the patient's expressed intent regarding the attempt and attitude toward the attempt.

This study identified a gap in the research literature, certainly in the South African context. The author is not aware of any such studies done in other low- and middle-income countries, including other African countries. While 'statistical' risk factors for suicide are well-recognised, the factors that make someone at risk of suicide more likely to be admitted to an EPU have not been described. It is these risk factors that this study explored. We proposed that there was overlap with the risk factors for suicide, but that the factors were not the same. Given

the high reported rates of DSH in South Africa and the resource-constrained public health care system, patient factors predicting psychiatric admission following DSH was deemed an important area for research which could inform future guidelines and recommendations to improve outcomes and better allocate resources.

Methods

The aim of this study was to investigate the sociodemographic and clinical factors which differentiated DSH patients who were admitted to an EPU compared to those who were treated in the ED and discharged. The objectives were to determine associations between being admitted to an EPU (as opposed to being treated in ED and discharged) following an act of DSH and:

1) sociodemographic factors (gender, relationship status, number of dependents, completed level of education, employment status and socioeconomic status)
2) clinical factors (method of DSH, substance use at the time of DSH, chronic substance use, level of suicidal intent, level of consciousness, suicidal compared to non-suicidal self-injury, history of DSH)
3) stated intentions of DSH and stated reasons for DSH

Context

This was a retrospective cross-sectional analysis, part of a larger, completed epidemiological study of DSH, and analysed existing data from the larger study. Data were collected for the larger, epidemiological study from 272 consecutive self-harm patients presenting to the ED of a hospital in SA between 16 June 2014 and 29 March 2015. The hospital is a large tertiary, academic, public hospital in an urban city that serves a catchment population of 1.5 million people as part of a network of primary healthcare clinics and secondary hospitals (Myer, Smith, & Mayosi B, 2012).

Every patient presenting to the ED with DSH was assessed by an ED doctor. The assessment included gauging the severity of the injury, providing necessary medical support, evaluating mental health problems and continuing risk of self-harm, and determining the appropriate disposition of the patient. Patients deemed to be at low risk of further self-harm were discharged from the ED by the ED doctor, and those assessed as being at medium to high risk of ongoing

self-harm were referred to psychiatry. The psychiatry doctor then decided whether the patient required admission to the EPU.

Of the data set (n=174), 84 patients were admitted to an EPU and 90 patients were treated in the ED and discharged. Of the initial larger data set, 98 patients were admitted to medical wards, with the need primarily for medical care [short-stay medical wards (64 patients), intensive care units or high care wards (17 patients), and long-stay medical or surgical wards (17 patients)]. As we were interested in factors predicting admission to the EPU we did not consider the patients admitted to medical wards. The analysis compared patients treated in the ED (i.e. patients who did not require any inpatient medical treatment) and discharged with patients admitted to the EPU.

Although excluded from our study, the cohort of patients who required emergency medical or surgical intervention likely represents those with more serious DSH attempts and increased overall severity. They are an important, high-risk group of patients, who would receive necessary psychiatric care through a consultation-liaison service whilst admitted to medical wards.

Data collection

Data were collected from the medical records of patients which contained information recorded by doctors in the ED. The recording of this data was part of the routine clerking of all DSH patients treated in the ED, and purposefully extracted from the medical records by an experienced psychiatric nurse and masters research students using a data capture form, under the supervision of a psychologist. The following information was collected:
(1) *Sociodemographic characteristics.* Data were captured for age, gender (self-identified male versus female), relationship status (married/relationship versus not in a relationship), number of dependants (one or more dependents versus no dependents), completed level of education (tertiary education versus no tertiary education), employment status (employed versus unemployed) and monthly family income. We coded socioeconomic status (SES) as low SES (if monthly family income was below ZAR76 800) or high SES (if monthly family income was above ZAR76 801).
(2) *Clinical characteristics.* The following clinical data were recorded: method of DSH, substance use at the time of DSH, chronic substance use, suicidal (i.e., non-zero intent to die)

compared to non-suicidal self-injury (i.e., zero intent to die), previous DSH, level of suicidal intent, level of consciousness on admission. We made use of the 12-item Pierce Suicidal Intent Scale (PSIS) to objectively measure the level of suicidal intent. A PSIS score of below 12 was regarded as 'low to moderate suicidal intent' and a score of 12 and above as 'high suicidal intent'. The Glasgow Coma Scale (GCS) was used to measure a patient's level of responsiveness to stimuli (i.e., level of consciousness) on admission to the ED. We regarded a score of 13 to 15 to indicate no or minimal depression in level of consciousness (LOC), a score of 9 to 12 to indicate a moderately depressed LOC, and a score of 8 or less to indicate a significantly depressed LOC.

The author could not find any existing studies assessing the reliability or validity of PSIS. Although for the similar Beck's Suicide Intent Scale (SIS), statistical models based on the SIS score/items had lower specificity and sensitivity in predicting hospitalisation decisions when compared to models based on clinical variables (Baca-García, et al., 2004). The GCS was developed by two neurosurgeons and was initially designed to assess LOC in head injured patients. In a study of its reliability, only moderate degrees of interrater agreement for the total score and its component scores were found (Gill, Reiley, & Green, 2004).

(3) *Stated intentions of DSH.* Patients' stated intentions for engaging in DSH were categorised thus: regulate the behaviour of someone else, regulate emotional state, escape a situation, communicate something (e.g., distress), accidental self-injury (as opposed to deliberate self-injury), and other reasons not covered in the previous categories. Where patients reported multiple intentions, they were included in more than one category. These categories of stated intention were determined from the results of a previous study exploring motives and intentions for self-harm in this sample (van Zyl et al, in press).
(4) *Stated reason for DSH.* Patients' stated reasons for engaging in DSH were categorised as: financial concerns, marital or romantic relationship issues, family conflict, medical illness, psychiatric illness, bereavement, academic concerns, social issues (i.e. isolation, friendship problems, legal problems) and unplanned pregnancy. These categories of stated reason were also determined from the results of the above-mentioned study by van Zyl.

The issue of intention in suicidology is multidimensional and complex, and notoriously difficult to measure, whether by suicide rating scales or by clinical risk assessment. Andriessen makes terminological distinction between "the retrospective perspective of motives versus the

prospective perspective of intentions", and argues that the latter is more closely linked to suicidal behaviour (Andriessen, 2006).

Data analysis

Data were captured, cleaned, and analysed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to describe sample characteristics. Bivariate logistic regression analysis was used to determine the association between sociodemographic characteristics, clinical characteristics, stated intention of DSH and stated reason for DSH, and admission to the EPU following DSH. Then, multivariate logistic regression analysis was used to investigate which variables best predicted admission to the EPU following DSH, while controlling for the other variables in the model. The results of the multivariate logistic regression models were reported as adjusted odds ratios with 95% confidence intervals. For all, analysis significance was set to alpha=0.05.

Ethical considerations

Ethical approval for the study was obtained from the Health Sciences Research Ethics Committee at University of Cape Town (reference: 248/2019). Institutional permission for the initial epidemiological study was obtained from the relevant provincial and hospital authorities. All de-identified data were stored electronically on password protected computers.

Results

Sample characteristics:

Table 1 shows the sample characteristics. The sample consisted of 174 patients, of which 90 (51.7%) were treated in the ED and discharged, and 84 (48.3%) were admitted to the EPU. The sample consisted predominantly of individuals who identified as female (n=103, 59.2%), English speaking (n=97, 55.7%), single (n=132, 75.9%), with no dependants (n=117, 67.2%), secondary school level of education (n=73, 42.0%), unemployed (n=92, 52.9%), and low SES (n=100, 57.5%).

Table 1. Sample characteristics (n=174).

		N	%
Self-identified gender	Male	71	40,8
	Female	103	59,2
Relationship status	Single	27	15,5
	In a relationship	146	83,9
	Not known	1	0,6
Dependants	No dependants	117	67,2
	Dependants	54	31,0
	Not known	3	1,7
Education	Tertiary	31	17,8
	Secondary	73	42,0
	Primary	70	40,2
Employment status	Student	39	22,4
	Unemployed	92	52,9
	Employed	34	19,5
	Retired	4	2,3
	Not known	5	2,9
History of previous attempts	None	52	29,9
	One	35	20,1
	Multiple	33	19,0
	Not known	54	31,0

	Mean	S. D
Age	30,99	13,609
PSIS	10,00	5,223
GCS on admission	13,38	3,228

Sociodemographic factors associated with admission to the emergency psychiatry unit:

Table 2 shows results of the bivariate analysis of sociodemographic factors associated with admission to the EPU. Having dependants was significantly associated with a significantly increased likelihood of admission to the EPU (OR=4.78, 95% CI=2.37-9.73, p=0.00), as opposed to being treated in the ED and discharged. No other sociodemographic variables were significantly associated with admission to the EPU.

The results of the multivariate logistic regression with sociodemographic factors as predictors of admission to the EPU are shown in Table 3. When controlling for the influence of all other sociodemographic variables, the number of dependants was no longer significantly associated with admission to the EPU. The multivariate model was not statistically significant [$x^2(6) =5.33$, p=0.50] and accounted for only 5% of the variance in admission (Nagelkerke R Square=0.05).

Table 2. Bivariate analysis of sociodemographic factors associated with admission to the EPU following an act of DSH (n=174).

	Admitted to the EPU (n=84)	Treated in ED and discharged (n=90)	X^2	df	p-value	OR (95% CI)
Gender: Male (0) Female (1)	 32 (38.1%) 52 (61.9%)	 39 (43.3%) 51 (56.7%)	0.494	1	0.482	1.24 (0.678-2.28)
Relationship status: Married/Relationship (0) Not in a relationship (1) Not known	 13 (15.5%) 70 (83.3%) 1 (1.2%)	 14 (15.5%) 76 (84.4%) 0	0.000	1	0.985	0.992 (0.436-2.26)
Number of dependants: One or more dependants (1) No Dependants or pregnant (0)	 32 (38.1%) 51 (60.7%)	 66 (73.3%) 22 (24.4%)	23.2	1	0.000*	4.78 (2.37-9.73) *

Not known	1 (1.2%)	2 (2.2%)				
Completed level of education: Primary or secondary education (0) Tertiary education (1)	 69 (82.1%) 15 (17.9%)	 74 (82.2%) 16 (17.8%)	0.000	1	0.989	1.01 (0.462-2.19)
Employment status: Employed (0) Unemployed (1)	 20 (23.8%) 62 (73.8%)	 14 (15.6%) 73 (81.1%)	1.81	1	0.179	0.595 (0.277-1.27)
Socioeconomic status (SES): Low SES (0) High SES (1) Not known	 50 (59.5%) 29 (34.5%) 5 (6.0%)	 50 (55.6%) 31 (34.4%) 9 (10.0%)	0.042	1	0.838	0.935 (0.493-1.78)

OR: odds ratio

CI: confidence interval

* $p<0.05$

Table 3. Multivariate logistic regression analysis of sociodemographic characteristics as predictors of admission to EPU following an act of DSH (n=174).

Predictor	*B*	s.e.	Wald x^2	*P*	OR	95% CI
Gender (Male)	-0.28	0.35	0.62	0.43	0.76	0.38-1.51
Relationship status (Not in a relationship)	-0.59	0.50	1.36	0.24	0.56	0.21-1.49
Dependants (No dependents)	-0.51	0.40	1.62	0.20	0.60	0.28-1.32
Completed level of education (Completed primary or	-0.32	0.46	0.48	0.49	0.73	0.30-1.80

secondary school)						
Employment status (Unemployed)	0.57	0.46	1.54	0.21	1.76	0.72-4.32
SES (Low income ZAR76 800 or less)	-0.01	0.36	0.00	0.99	0.99	0.49-2.00

OR: odds ratio

CI: confidence interval

Clinical factors associated with admission to the emergency psychiatry unit:

Table 4 shows results of the bivariate analysis of clinical characteristics associated with admission to the EPU, and Table 5 shows the results of the multivariate analysis. None of the clinical variables was significantly associated with admission to the EPU in bivariate or multivariate analysis. The multivariate model was statistically insignificant [$x^2(7) = 1.411$, $p=0.99$] and only accounted for 3% of the variance in admission (Nagelkerke R Square = 0.03), suggesting that this combination of clinical characteristics did not account for the decision to admit a DSH patient to the EPU.

Table 4. Bivariate analysis of clinical characteristics associated with admission to the EPU following an act of DSH, (n=174).

	Admitted to the EPU	Treated in ED and discharged	X^2	df	p-value	OR (CI)
Method of DSH: Damage to body tissue (0) Self-poisoning (1) Mixed method (2) Not known	 12 (14.3) 67 (79.8%) 4 (4.8%) 1 (1.2%)	 14 (15.6%) 71 (78.9%) 5 (5.6%) 0	0.050	1	0.822	1.10 (0.475-2.55)

Substance use at the time of DSH: Yes (0) No (1)	 16 (19%) 68 (81%)	 20 (22.2%) 70 (77.8%)	0.267	1	0.605	1.21 (0.581-2.54)
Chronic substance use: Yes (1) No (0) Not known	 31 (36.9%) 53 (63.1%) 0	 34 (37.8%) 55 (61.1%) 1 (1.1%)	0.031	1	0.860	0.946(511-1.752)
Level of suicidal intent: Moderate to low suicidal intent (i.e. PSIS score 11 or lower) (0) High suicidal intent (i.e. PSIS score >11) (1) Not known	 31 (36.9%) 17 (20.2%) 36 (42.9%)	 32 (35.6%) 18 (20%) 40 (44.4%)	0.004	1	0.952	0.975 (0.427-2.23)
Level of consciousness (LOC) on admission: Minimal depression in LOC (0) Moderately to significantly depressed LOC (1) Not known	 56 (66.7%) 14 (16.7%) 14 (16.7%)	 67 (74.4%) 15 (16.7%) 8 (8.6%)	0.071	1	0.789	1.12 (0.497-2.51)
Suicidal versus non-suicidal self-injury: Suicidal self-injury (1) Non-suicidal self-injury (0) Not known	 35 (41.7%) 42 (50%) 7 (8.3%)	 28 (31.1%) 55 (61.1%) 7 (7.8) %	2.298	1	0.130	1.64 (0.864-3.10)
Previous DSH: History of previous DSH (1) No history of previous DSH (0) Not known	 32 (38.1%) 29 (34.5%) 23 (27.4%)	 36 (40%) 23 (25.6%) 31 (34.4%)	0.895	1	0.344	0.705 (0.341-1.46)

OR: odds ratio

CI: confidence interval

Table 5. Multivariate logistic regression analysis of clinical characteristics as predictors of admission to EPU following an act of DSH (n=174).

Predictor	*B*	s.e.	Wald x^2	*P*	OR	95% CI
Method of DSH	-0.183	1.076	0.029	0.865	0.832	0.101-6.853
Substance use at the time	0.690	0.751	0.842	0.359	1.99	0.457-8.69
Chronic substance use	0.422	0.688	0.375	0.540	1.52	0.396-5.87
Level of suicidal intent	-0.033	0.596	0.003	0.956	0.967	0.301-3.12
Level of consciousness on admission	0.513	0.751	0.466	0.495	1.67	0.383-7.28
Suicidal versus non-suicidal self-injury	0.048	0.579	0.007	0.934	1.05	0.337-3.27
Previous DSH	-0.084	0.527	0.025	0.873	0.919	0.327-2.59

OR: odds ratio

CI: confidence interval

Stated intentions of self-harm associated with admission to the emergency psychiatry unit:

Table 6 provides the results of the bivariate analysis comparing differences in the patients' stated intentions for engaging in DSH between those admitted to the EPU and those treated in the ED and discharged. There were no statistically significant differences between the two groups. The multivariate model was also statistically insignificant [$x^2(7) = 5.698$, p=0.58] and only accounted for 5.2% of the variance in admission (Nagelkerke R Square = 0.052), suggesting that the decision to admit the patient to the EPU was not associated with the stated intentions of self-harm.

Table 6. Bivariate analysis of the stated intentions of DSH associated with admission to the EPU following an act of DSH (n=174).

	Admitted to the EPU	Treated in ED and discharged	X^2	df	p-value	OR (CI)
Regulate the behaviour of someone else:			0.293	1	0.589	1.23 (0.579-2.62)
Yes	15 (17.9)	19 (21.1)				
No	69 (82.1)	71 (78.9)				
Regulate emotional state:			0.325	1	0.568	1.32 (0.505-3.47)
Yes	8 (9.5)	11 (12.2)				
No	76 (90.5)	79 (87.8)				
Escape a situation:			0.267	1	0.605	1.21 (0.581-2.54)
Yes	16 (19)	20 (22.2)				
No	68 (81)	70 (77.8)				
Communicate something (e.g. distress):			1.72	1	0.190	1.54 (0.807-2.92)
Yes	23 (27.4)	33 (36.7)				
No	61 (72.6)	57 (63.3)				
Accidental versus deliberate self-injury:			0.667	1	0.414	1.69 (0.475-5.98)
Accidental self-injury	4 (4.8)	7 (7.8)				
Intentional/deliberate self-injury	80 (95.2)	83 (92.2)				

OR: odds ratio

CI: confidence interval

Stated reasons for DSH associated with admission to the emergency psychiatry unit:

Table 7 provides the results of the bivariate analysis comparing differences in stated reasons for DSH patients admitted to the EPU, compared with those treated in the ED and discharged. No statistically significant differences were observed between the two groups of patients. A multivariate analysis for these predictors could not be calculated due to low numbers in some levels of the respective subgroups.

Table 7. Bivariate analysis of the stated reasons for DSH associated with admission to the EPU following an act of DSH (n=174).

	Admitted to the EPU	Treated in ED and discharged	X^2	df	p-value	OR (CI)
Financial concerns:			2.09	1	0.148	0.555 (0.248-1.24)
Yes	19 (22.6)	12 (13.3)				
No	58 (69)	66 (73.3)				
Not known	7 (8.3)	12 (13.3)				
Marital or romantic relationship issues:			0.389	1	0.533	1.24 (0.634-2.41)
Yes	24 (28.6)	28 (31.1)				
No	53 (63.1)	50 (55.6)				
Not known	7 (8.3)	12 (13.3)				
Family conflict:			0.820	1	0.365	1.34 (0.709-2.54)
Yes	30 (35.7)	36 (40)				
No	47 (56)	42 (46.7)				
Not known	7 (8.3)	12 (13.3)				
Medical illness:			0.286	1	0.593	1.35 (0.446-4.10)
Yes	6 (7.1)	8 (8.9)				
No	71 (84.5)	70 (77.8)				
Not known	7 (8.3)	12 (13.3)				
Psychiatric illness:			0.358	1	0.550	1.29 (0.560-2.97)
Yes	12 (14.3)	15 (16.7)				
No	65 (77.4)	63 (70)				
Not known	7 (8.3)	12 (13.3)				
Bereavement:			0.000	1	0.983	0.986 (0.274-3.55)
Yes	5 (6)	5 (5.6)				
No	72 (85.7)	73 (81.1)				
Not known	7 (8.3)	12 (13.3)				
Academic concerns:			0.099	1	0.753	0.833 (0.267-2.60)
Yes	7 (8.3)	6 (6.7)				

No Not known	70 (83.3) 7 (8.3)	72 (80) 12 (13.3)				
Social issues (i.e. isolation, friendship problems, legal problems): Yes No Not known	 3 (3.6) 74 (88.1) 7 (8.3)	 5 (5.6) 73 (81.1) 12 (13.3)	-	-	-	-
Unplanned pregnancy: Yes No Not known	 0 (0) 77 (91.7) 7 (8.3)	 2 (2.2) 14 (15.6) 12 (13.3)	-	-	-	-

OR: odds ratio

CI: confidence interval

Discussion

Internationally and locally the number of mental health patients who seek treatment from EDs consistently increases, and as a result, there is an increased demand for emergency psychiatric services (Larkin, Claassen, Emond, Pelletier, & Camargo, 2005). It is important to understand the characteristics of patients admitted to EPUs in order to plan more effective services and to help clinicians determine which patients are appropriate for admission to an EPU. This is particularly important in resource-constrained settings, like South Africa, where there is a high demand for psychiatric services and a large treatment gap. A treatment gap refers to the number of people with an illness or disorder who need treatment but do not receive it. The treatment gap for people with mental disorders exceeds 50% in all countries, and approaches 90% in the least resourced countries (Patel, et al., 2010).

This study investigated the sociodemographic and clinical factors which differentiated DSH patients who were admitted to an EPU compared to those who were treated in the ED and

discharged. Approximately half of the patients presenting to the ED following an act of DSH were admitted to the EPU.

Of the patients admitted to the EPU, a greater proportion of patients were female (61,9%), were not in a relationship (83,3%), had no dependents (60,7%), were unemployed (73,8%), and had a low socioeconomic status (59,5%) – although all these differences were not statistically significant. This is largely consistent with existing literature which found that sociodemographic factors such as unemployment, single marital status and low psychosocial functioning, were associated with admission to an EPU. In contrast to our study, where females were more likely to be admitted to EPU, the existing literature found males were more likely to be admitted.

Having dependants was associated with an increased likelihood of admission to the EPU in bivariate analysis. However, when controlling for the influence of all other sociodemographic variables, having dependants was no longer significantly associated with admission to the EPU, suggesting that this relationship is influenced by the interaction with the other sociodemographic factors (e.g. socioeconomic status etc.). Future studies could be designed in such a way that the mediating effect of sociodemographic factors can be explored.

The study did not identify any clinical variables which were significantly associated with admission to the EPU in bivariate or multivariate analysis. This result is surprising and suggests that there are not detectable clinical differences between DSH patients admitted to EPUs and those who are treated in the EDs and discharged. Future research could explore this issue more carefully to investigate how clinicians make decisions about admitting patients to the EPU since it was not clear from the variables we investigated how these decisions were made.

A validated screening tool or a more accurate measure used for the clinical correlates (e.g. screening tool for substance-related disorders) could have better highlighted perhaps subtle but important differences between these two groups. This information could help guide initial assessment of individuals who present to the hospital following DSH.

More than a third of patients admitted to the EPU reported a history of previous DSH. This large proportion is important given available literature showing that risks and rates of readmission for suicide attempt and mortality from suicide were highest in the first two years

after the index attempt. This suggests a need for optimal management and ongoing support of those admitted for a suicide attempt, in an attempt to reduce future such risk (Gibb, Beautrais, & Fergusson, 2005).

The ways in which patients choose to self-harm, and their stated reasons for, and intentions of, their DSH play a role in the costs and benefits related to hospital care and EPU admission. In our study, there was no statistically significant difference between EPU patients and those who were treated and discharged with regards to the stated intentions of DSH. Over 90% in both groups stated that their self-injury was deliberate (as opposed to accidental). There was also no statistically significant difference between the groups with regards to the stated reasons for DSH. Low numbers in the different categories for stated reason made it difficult to do a meaningful analysis. Future studies with a larger sample size could better explore stated reason for DSH as a predictor of EPU admission.

The association between substance use and suicidal behaviour is well established; the relationship between substance use or substance use disorders and psychiatric admission for DSH is complex and less well understood. The two substance-related variables used in our study ('substance use at time of self-harm' and 'history of chronic substance use') did not yield any significant results between the EPU patients and those discharged from ED. The international literature illustrates apparent discrepancy on the subject, in that not having a substance-related disorder (Miret, et al., 2011) and lack of alcohol consumption preceding the attempt (Suominen & Lonnqvist, 2006) were found to be predictors of admission. Future qualitative-type research will be needed to further explore the rationale for this.

The problem of using suicide clinical rating scales to assess suicide intent was highlighted in our study, where the PSIS was used as a proxy for level of suicidal intent. A greater percentage (36,9%) was admitted to EPU with 'moderate to low intent', than with 'high intent' (20,2%). In 42,9% of EPU admissions the PSIS score was unknown. Inter-rater variability is a well-accepted limitation of the use of such scales.

It is assumed that clinical discharge decisions were appropriate, but there is no standardised measure of such a decision. The decision to admit or discharge a DSH patient may be influenced by external factors, such as fear of litigation or, in the setting of managed health care systems (i.e. private healthcare), where authorisation for admission needs to be obtained

(Baca-García, et al., 2004). It is likely that these factors would have been less relevant in admission decisions in the public sector hospital in which our study was conducted.

One of the limitations of this study was the small sample size. As such, it is necessary to interpret the results with caution. Findings were based on one urban hospital setting and therefore are not generalisable. Also, the data, that made up the database, were collected as part of the routine administration and treatment of DSH patients at the hospital, rather than specifically for research purposes. While the use of routine hospital admission data in DSH research is reasonably reliable (Sellar, Goldacre, & Hawton, 1990), it is possible that information for some patients admitted for DSH may have been miscoded.

Most of the research into DSH has been done in relatively well-resourced countries. The barriers to accessing mental health care and resource constraints characteristic of South Africa need to be borne in mind when considering and comparing the results of our study.

This study did not include age, history of psychiatric illness or patient's attitudes towards their DSH as clinical variables. History of psychiatric illness, having a psychiatric diagnosis and/or previous psychiatric inpatient treatment were consistently identified in the international literature as being associated with EPU admission following DSH. Retrospective attitude towards the attempt was a significant predictor in determining whether to admit (Miret, et al., 2011) (Baca-García, et al., 2006) and thus would have been useful to include.

Non-clinical factors, such as the time or the day of presentation to ED, were also not included in this study, and the study was limited to the treatment practices at one urban hospital. Given the limited availability of staff at the hospital after hours and on weekends, it is possible that important cases were missed. The literature suggests that these non-clinical factors of DSH presentations strongly influence patterns of EPU admission.

We did not find any significant differences in the sociodemographic or clinical correlates associated with an admission to the EPU compared to being treated in the ED and discharged. Therefore, in future, we need to consider the importance and implications of finding these differences out. What might be a more pertinent question is whether, and for whom, admission to the EPU is more effective at treating DSH and ensuring safety (both short- and long-term) than, for example, outpatient treatment or some other form of community intervention and

prevention strategy. Future research could explore alternatives to admission, and the different types of intervention and prevention efforts available to individuals who present to an ED, and determine the efficacy of using these strategies to reduce DSH. This could reduce some of the burden on our resource-constrained hospital settings.

Clinical patient-related factors, such as psychosis or having a suicide plan, continue to represent perceived risks for DSH patients that influence hospitalisation decisions, but it remains to be demonstrated whether such factors are associated with suicide acts and whether hospitalisation decisions, based on these factors, successfully reduce such acts (Goldberg, Ernst, & Bird, 2007). Prospective, cohort-type studies are needed to further investigate this.

Ultimately the decision to admit a DSH patient to an EPU is based on the decision-making process and clinical judgement of the attending clinician. Clinician-related factors that influence admission decisions is an important area for future research. The aim of this study was to identify patient variables which may be closely related to the clinical decision of admission. There is no proof, however, that such variables do support the individual clinicians' decisions (Baca-García, et al., 2004). It would also be useful to identify situations in which clinicians err in their decision-making i.e. admitting low-risk DSH patients or discharging high-risk DSH patients.

Conclusion

The lack of significance in the sociodemographic or clinical factors associated with an admission to the EPU (compared to being treated in the ED and discharged) is surprising. At face value it suggests that there are no obvious differences between the two groups. The use of a validated screening tool or more accurate measure of the clinical correlates could have better highlighted perhaps subtle differences between the two groups. It is perhaps more important to question whether the perceived risk factors in DSH patients are associated with suicidal behaviour and whether EPU admission, based on these factors, is more effective at treating DSH short-term, and reducing suicidal behaviour long-term, than say outpatient-based interventions. Clinician-related factors that influence admission decisions following DSH is also an important area for future research.

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APPENDICES

DSH epidemiological study data capture form

Sex:

Male	Female

Age:

Ethnicity:

Black	Asian	Coloured	White	Unknown

Home language:

Afrikaans	isiXhosa	English	Other (Specify)

Nationality:

South African	Other

Religion

Christian	Islam	Hindu	Catholic	Other	Not known

Marital status:

Single	Married	Separated	Divorced	Widowed

Number of dependents (children):

Completed level of education:

Primary schooling	Secondary schooling	Tertiary Education (Under graduate qualification)	Post graduate qualification

Employment status:

Unemployed	Employed

Living circumstances:

Income level (SES):

Method of DSH:

		Quantity:
Prescription medication	Benzodiazepines	
	Barbiturates	
	Tricyclics	
	Anti-psychotics	
	SSRIs	
	Analgesics	
	anti-hypertensives	
	iron tablets	
	antiepileptics,	
	antibiotics	
	oral hypoglycaemic agents	
	Unknown	

	Other meds (specify)	
Non-prescription medication	**Aspirin**	
	Paracetamol	
	Other meds (specify)	
Ingestion or inhalation of poison	**Organophosphate**	
	Rat poison	
	Corrosive substance (Acid)	
	Bleach	
	Carbon monoxide	
	Other (specify)	
Gun shot		Site of wound(s):

Laceration		Site of wound(s):
Immolation		
Hanging		
Asphyxiation		

Severity of the act:

		Duration of admission
Level of admission	Seen in casualty and discharged	
	Admitted to C13 (short stay medical unit)	
	Admitted to another medical unit	
	Admitted to high care	
	Admitted to ICU	

Level of intervention	None
	Sutured
	Activated charcoal

	Oral medical treatment
	IV medical treatment
	Intubation and ventilation
	Dialysis
	Surgical procedure

GCS on admission	

Stated intention:

To Die	
To regulate the behaviour of someone else	
To regulate emotional state	
To escape a situation	
Implosive act	
To communicate something (e.g. distress)	
Mistake	
Not known	
Other (specify)	

Stated reason for the attempt:

Financial concerns	
Marital / romantic relationship issues	
Family conflict	
Medical illness	
Psychiatric illness	

Bereavement	
Academic concerns (exams or performance at school/university)	
Other (specify)	
Not known	

Previous attempts:

Not known	
No previous attempts	
One previous attempt	
Multiple (2 or more) previous attempts	

History of psychiatric illness (Has the patient received a psychiatric Dx prior to this act of DSH?):

Unipolar mood disorder	
Bi-polar mood disorder	
Anxiety Disorder	
Personality Disorder	
Psychotic Illness (Schizophrenia)	
Substance dependence	
Post-Traumatic Stress Disorder	
Adjustment disorder	
No psychiatric Dx	
Not known	
Other (specify)	

Current Psychiatric Dx (On assessment following the act of DSH):

Unipolar mood disorder	
Bi-polar mood disorder	
Anxiety Disorder	
Personality Disorder	
Psychotic Illness (Schizophrenia)	
Substance dependence	
Post-Traumatic Stress Disorder	
Adjustment disorder	
No psychiatric Dx	
Not known	
Other (specify)	

Receiving psychiatric treatment prior to admission:

Yes	No	Not-known

Receiving psychological treatment (psychotherapy) prior to admission:

Yes	No	Not-known

Medical Dx not related to the incident of DSH:

HIV status:

HV+	HIV-	Not-known

Evidence of alcohol/drug intoxication during the act of DSH:

Yes	Alcohol	
	Cannabis	
	Methaqualone (Mandrax)	
	Cocaine	
	Methamphetamine (Tik)	
	Heroin	
	Solvents	
	Other (specify)	
No		
Not know		

History of substance abuse:

Alcohol abuse	
Cannabis Abuse	

Benzodiazepines	
Methaqualone (Mandrax)	
Cocaine Abuse	
Methamphetamine (Tik) Abuse	
Heroin	
Solvents	
MDMA (Ecstasy)	
Flunitrazipam (Rohypnol)	
Ketamine	
Wellconal (Pinks)	

Psychiatric Plan:

Assessed by psychiatric registrar	Yes	No

Psychotropic meds initiated	No
	Yes (specify)

Psychotropic meds adjusted	No
	Yes (specify)

Input from psychologist	No
	Yes (specify)

Input from social worker	No
	Yes (specify)

Discharged	Discharged without follow up	
	Discharged with follow up at community clinic	
	Discharged follow up at DCAP	
	Discharged with follow-up with drug/alcohol rehab	
	Discharged with follow up in J2	psychiatry
		psychology
	Discharged with referral made to therapeutic unit	G22
		VBH ward 1
		LGH ward 15

Admission	C23 (emergency unit)	voluntary	assisted	involuntary
	G22 (therapeutic unit)	voluntary	assisted	involuntary

Record of follow up:

No record of follow up	
Record of follow up	
Not known	

Human Research Ethics Committee – initial ethics approval

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E53-46 Old Main Buildir
Groote Schuur Hospit
Observatory 792
Telephone [021] 406 64
Email: sumayah.arieffdien@uct.ac.
Website: www.health.uct.ac.za/fhs/research/humanethics/form

09 May 2019

HREC REF: 248/2019

Dr I Lewis
Department of Psychiatry & Mental Health
2nd Floor, Room H74
Human Resources and Development Centre
(aka Doctors' Bungalows)-GSH

Dear Dr Lewis

PROJECT TITLE: PATIENT FACTORS THAT PREDICT ADMISSION TO AN EMERGENCY PSYCHIATRIC UNIT FOLLOWING DELIBERATE SELF-HARM IN AN URBAN HOSPITAL IN SOUTH AFRICA. (SUB-STUDY LINKED TO 645/2013) (MMED CANDIDATE: DR K GROBLER)

Thank you for your response letter dated 30 April 2019, addressing the issues raised by the Human Research Ethics Committee (HREC).

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30 May 2020.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

We acknowledge that the student: Dr Kathryn Grobler will also be involved in this study.

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

Signature removed

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

HUMAN RESEARCH ETHICS COMMITTEE
HEALTH SCIENCES FACULTY
UNIVERSITY OF CAPE TOWN

FHS017: Annual Progress Report / Renewal

Record Review/Audits/Collection of Biological Specimens/Repositories/Databases/Registries

HREC office use only (FWA00001637; IRB00001938)			
This serves as notification of annual approval, including any documentation described below.			
☑ Approved	Annual progress report	Approved until/next renewal date	30.9.21
☐ Not approved	See attached comments		
Signature Chairperson of the HREC/ Designee	signature removed	Date Signed	20/09/20

Note: Please note that incomplete submissions will not be reviewed.
Please email this form and supporting documents (if applicable) in a combined pdf-file to hrec-enquiries@uct.ac.za.

Please clarify your plan for research-related activities during COVID-19 lockdown

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	28/8/2020		
HREC REF Number	248/2019	Current Ethics Approval was granted until	30/05/2020
Protocol title	Patient factors that predict admission to an emergency psychiatric unit following deliberate self-harm in an urban hospital in South Africa		
Principal Investigator	Dr Ian Lewis		
Department / Office Internal Mail Address	Department of Psychiatry & Mental Health Groote Schuur Hospital		
1.1 Does this protocol receive US Federal funding?		☐ Yes	☒ No

2. Protocol status (tick ✓)

☐	Research-related activities are ongoing
☐	Data collection is complete, data analysis only

Please indicate (in the block below) the titles and HREC reference numbers of any projects currently making use of the Database/registry/repository

3. Protocol summary

Total number of records or specimens collected, reviewed or stored since the original approval		? n=174
Total number of records or specimens collected, reviewed or stored since last progress report		N/A
Have any research-related outputs (e.g. publications, abstracts, conference presentations) resulted from this research? If yes, please list and attach with this report.	☐ Yes	☒ No

4. Signature

Signature of PI	signature removed	Date	1 Sept 2020

Hospital approval for epidemiological study

Western Cape Government
Health

GROOTE SCHUUR HOSPITAL
Enquiries: Dr Bhavna Patel
E-mail : Bhavna.Patel@westerncape.gov.za

To: Dr Jason Bantjes
Psychology Department
Stellenbosch University
Room 2007
Wilcocks Building

E-mail: jbantjes@sun.ac.za

Dear Dr Bantjes,

RESEARCH PROJECT: AN INVESTIGATION OF THE EPIDEMIOLOGY, PSYCHO-SOCIAL CORRELATES, AND CULTURAL CONTEXT OF DELIBERATE SELF-HARM IN SOUTH AFRICA.

Your recent letter to the hospital refers.

You are hereby granted permission to proceed with your research.

Please note the following:

a) Your research may not interfere with normal patient care
b) Hospital staff may not be asked to assist with the research.
c) No hospital consumables and stationary may be used.
d) **No patient folders may be removed from the premises or be inaccessible.**
e) Please introduce yourself to the person in charge of an area before commencing.
f) Please discuss the study with the Head of Psychiatry, Prof D. Stein, before commencing.
g) Please provide the research assistant/field worker with a copy of this letter as verification of approval.
h) Confidentiality must be maintained at all times.

I would like to wish you every success with the project.

Yours sincerely

Signature removed

DR BHAVNA PATEL
CHIEF EXECUTIVE OFFICER
Date: 02 December 2013

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Dr Ian Lewis
Supervisor
13 Nov 2020

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