Suicidology Online 2017; **8**: 10-23

Suicidology Online
open access journal
www.suicidology-online.com

ISSN 2078-5488

Original Research

Gender differences in epidemiology and medical service utilisation among self-harm patients seeking treatment at an urban hospital in South Africa

J. Bantjes[1, ✉], E. Breet[1], H. De Wet[1], M. Khan[2], R. Weiss[3], I. Lewis[4]

[1] Department of Psychology, Stellenbosch University, South Africa
[2] Department of Psychiatry, Aga Khan University, Pakistan
[3] Department of Biostatistics, UCLA School of Public Health, United States of America
[4] Department of Psychiatry and Mental Health, University of Cape Town, South Africa

Submitted to SOL: May 30th, 2016; accepted: January 11th ,2017; published: January 31st ,2017

***Abstract*:** Gender differences in patterns of self-harm in developed countries are well documented. Little is however known about gender differences in the epidemiology of self-harm in South Africa (SA) and about gender differences in medical service utilisation among self-harm patients. We set out to investigate gender differences in demographic, socio-cultural, clinical characteristics and medical service utilization of self-harm patients presenting at an urban hospital in SA. Demographic, socio-cultural, and clinical data were collected for 200 consecutive emergency room presentations of self-harm. Bivariate statistical and logistic regression analysis was employed to identify significant gender differences. Males constituted 40.5% of the sample. Male self-harm patients were more likely than women to have dependants, to injure themselves by hanging or laceration, to cite psychiatric illness as the reason for self-harm and to be admitted to an emergency psychiatric ward. Women self-harm patients were more likely than men to use prescription medications, cite family conflict as the precipitant of their self-harm, and to be treated in the emergency room and discharged. The proportion of males in the sample was higher than expected given what is known about gender differences in the prevalence of self-harm in SA. These findings draw attention to how contextual factors such as barriers to accessing health care may influence epidemiological self-harm data collected in hospital settings in low and middle income countries. Data also suggest that hospital based suicide prevention interventions may fail to reach women self-harm patients in SA who do not appear to access hospital care.

Keywords: deliberate self-harm; non-fatal suicidal behaviour; South Africa; epidemiology; gender differences, medical service utilization.

Gender differences in patterns of self-harm are well documented. A robust body of literature consistently shows that rates of self-harm are higher among women in western and developed countries (Arensman et al., 2008; Kessler, Berglund, Borges, Nock, & Wang, 2005; Klonsky & Muehlenkamp, 2007; Mościcki, 2014; Skegg, 2005) although in the last 15 years, data suggests a decline in the incidence of female self-harm in Europe (Schmidtke, Bille-Bahe, Kerkhof, & De Leo, 2004) and isolated reports can be found of exceptions to this norm (Ostamo & Lönnqvist, 1994). Research on self-harm in low and middle income countries (LMICs) is comparatively

✉ J R Bantjes, Department of Psychology, Stellenbosch University Private Bag X1, Martiland 7602 email: jbanjtjes@sun.ac.za

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

scant. However, studies conducted in Africa (Kebede & Alem, 1999; Kinyanda, Hjelmeland, & Musisi, 2004; Odejide, Williams, Ohaeri, & Ikuesan, 1986; Okasha & Lotaif, 1979) and India (Kumar, Mohan, Ranjith, & Chandrasekaran, 2006) found higher rates of men among individuals who self-harm, while studies from Pakistan report that self-harm is more common among women (Khan & Reza, 1998). No studies have been conducted to date focusing on gender differences in epidemiology of self-harm in South Africa (SA). Gender differences in epidemiology of self-harm have public health implications for interventions which seek to curb suicidal behaviour and for understanding the socio-cultural context in which self –harm occurs.

Literature documenting gender differences in patterns of medical service utilisation among self-harm patients is scant, although evidence suggests that the gender of a person engaging in self-harm may influence how their behaviour is appraised and hence may shape the medical care they receive (Canetto, 1997; Lester, 1995; Linehan, 1973). Likewise little attention has been paid to investigating how structural factors within the health care system of LMICs may influence access to care and hence give rise to gender differences in the pattern of medical service utilisation among self-harm patients. It is within this context that we set out to investigate gender differences with respect to demographic characteristics, socio-cultural features, methods of self-harm, nature of injuries sustained, motives and precipitants of the behaviour, and patterns of medical service utilisation among patients presenting for treatment in the emergency room of a hospital in an urban city of SA.

Gender patterns in the epidemiology of self-harm

Although rates of self-harm are typically higher among women, gender differences in patterns of self-harm fluctuate over time and seem to be a function of geographic region, ethnicity, and age. Schmidtke et al. (2004) report that relative proportions of male and female self-harm vary across regions within a country and between different countries. For example, the incidence of self-harm among men has been found to vary greatly across different regions of the UK (Hawton et al., 2007). Similarly, regional variations in rates of male and female self-harm were observed across eight European countries (Arensman et al., 2008). Ethnicity also seems to determine gender differences in patterns of self-harm. For example, a study conducted in a New York City hospital found similar rates of non-fatal suicidal acts among male and female Puerto Rican patients, although this pattern was not observed for other ethnic groups (Fernandez-Pol, 1986). Fewer gender differences in rates of self-harm are reported in community based samples (Andover, Pepper, & Gibb, 2007). Similarly, gender differences in rates of self-harm appear to be less marked in adolescent samples (Evans, Hawton, & Rodham, 2005; Muehlenkamp & Gutierrez, 2004) with gender differences becoming more pronounced as adolescents progress towards adulthood (Sourander et al., 2006). Studies suggest that there are gender differences with respect to method of self-harm, motivation for engaging in this behaviour and intention (Andover, Primack, Gibb, & Pepper, 2010; Klonsky & Muehlenkamp, 2007). There is, however, evidence to suggest that the most common reason for engaging in self-harm among both genders is affect regulation (Klonsky, 2007). Nock and Kessler (2006) have found significant gender differences with respect to intent, with men who engage in self-harm reporting higher rates of suicidal intent (i.e., a desire to die) than women.

Gender differences have been observed in frequency of repetition of self-harm. Some studies have reported higher rates of repetition among young male adolescents (Gratz et al., 2012; Møhl & Skandsen, 2012) while other studies report the reverse (Sornberger, Heath, Toste, & McLouth, 2012) and yet other studies report no significant gender difference in rates of repetition among adolescents (Muehlenkamp, Williams, Gutierrez, & Claes, 2009; Bjärehed & Lundh, 2008).

Scholars have speculated about the reasons for gender differences in patterns of self-harm (Mościcki, 1994). This is typically understood in terms of gender roles, cultural norms, societal expectations and attitudes towards self-harm and suicide (Canetto & Sakinofsky, 1998; Hawton, 2000).

Critics have cautioned against over interpreting the significance of gender differences in patterns of self-harm since observed differences with respect to the proportion of women may be an artefact of biased data collection (Whitehead, Johnson, & Ferrence, 1973), for example, the exclusion of data from male-dominated environments such as jails (Bland, Newman, Dyck, & Orn, 1990; Kerkhof & Bernasco, 1990). Scholars have also cautioned that observed gender differences may be influenced by study design and methodological factors such as how self-harm is defined, the time period under investigation (i.e., life-time prevalence versus 12-month prevalence), data collection methods (i.e., self-report questionnaires versus the use of interviews or medical records), the population of interest (i.e., general population versus clinical populations), whether or not community-based or hospital-based samples are used, as well as sample size and whether there is sufficient statistical power to draw meaningful inferences (Whitehead, Johnson, & Ferrence, 1973).

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Epidemiology of self-harm in South Africa

In SA, approximately 130 000 suicide attempts occur annually (Burrows & Schlebusch, 2008) although the prevalence of non-suicidal self-injury (NSSI) is less well documented. The epidemiology of self-harm has been remarkably neglected by researchers in SA, with researchers tending to focus on suicidal self-injury (attempted suicide). Furthermore, these studies have typically employed descriptive statistics and presented data in a way that makes meaningful gender comparisons impossible. Consequently, very little is known about gender patterns of self-harm in the country other than that the behaviour appears to be more common among women.

A hospital-based study of parasuicide conducted among Black South Africans (n=51) found that the majority of patients were women (64.7%) (Naidoo & Pillay, 1993). Similarly, a study conducted of suicide attempters treated in a hospital in Durban (n= 688) found that the majority of participants were women (73%) (Naidoo & Schlebusch, 2013). A study of patients (n=39) admitted to a hospital in George following a suicide attempt reported that the majority of patients were female (72%) (Raubenheimer & Jenkins, 2015). A community-based study drawing on a nationally representative sample (n= 4,351) of South Africans aged 18 years and older found noticeable gender differences with respect to the 12-month prevalence of self-harm; rates of attempted suicide were twice as high among women (3.8%) compared to men (1.8%) (Joe, Stein, Seedat, Herman, & Williams, 2008)

Study setting

Data for this study was collected at a large hospital in an urban city (hereafter referred to as the hospital). The hospital, with almost 900 beds, has more than 43 000 admissions a year and is staffed by more than 500 doctors and 1 400 nurses. The hospital is part of SA's public health care system; a system that is under considerable strain as a result of high rates of HIV, tuberculosis, chronic illness, mental illness, and injury and violence (Mayosi et al., 2012). Resource constraints and poor access to health care services in SA result in many people failing to receive the medical and psychiatric care they need (Harris et al., 2011; Petersen & Lund, 2011).

Method

We set out to investigate gender differences in demographic characteristics, socio-cultural and clinical features, and patterns of medical service utilisation among patients presenting for treatment at the emergency room (ER) of the hospital following an act of deliberate self-harm (DSH). We defined DSH in the same way the term was used in the WHO/Euro Multi-Centre Study on Parasuicide, namely "An act with non-fatal outcome, in which an individual deliberately initiates a non-habitual behaviour that, without intervention from others, will cause self-harm, or deliberately ingests a substance in excess of the prescribed or generally recognised therapeutic dosage, and which is aimed at realising changes which the subject desired via the actual or expected physical consequences" (Platt et al., 1994). Data were collected from consecutive patients presenting to the hospital with self-harm between 16 June 2014 and 15 Feb 2015. Over this time there were 220 presentations of DSH, of which 20 were excluded either because they died as a result of their injuries (5 patients), they had already been included in the study sample on a previous presentation during the study period (5 patients), they left prior to data being captured (1 patient), or their files were missing (9 patients). For the five patients who presented more than once during the study period, their first presentation was used for data capture.

Data collection

The following information was purposefully collected from the medical records of patients by an experienced psychiatric nurse using a data capture form: (1) *Demographic characteristics* (age, gender, home language, religious affiliation, ethnicity, employment status, relationship status, number of dependants, highest level of education, and socioeconomic status (assessed as low (annual family income of ZAR 76 800 or less) or high (annual family income of more than ZAR 76 800)); (2) *Details of self-harm* (time, day and method of self-harm, intention, precipitating factors, evidence of intoxication, whether or not the act was impulsive or premeditated, and history of self-harm); and (3) *Clinical features and medical service utilisation* (nature of injury, Glasgow Coma Scale (GSC) score on admission, Pierce Suicidal Intent Scale (PSIS) score, medical interventions required, level of admission and length of stay in hospital). The PSIS is a clinician administered self-report instrument composed of 12 questions assessing dimensions 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. The GCS is a neurological measure of the level of consciousness and is used in emergency medicine and intensive care settings to assess the severity of patients' injuries and monitor their progress. GCS scores vary from three (indicating deep unconsciousness) to 15 (indicating fully alert and conscious).

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Data analysis

Data were entered into Statistical Package for the Social Sciences (SPSS v.18) (Norusis, 1990). Descriptive statistics were employed to describe the sample and bivariate statistical methods (Chi square and Fishers' exact tests) were used to determine if there were statistically significant gender differences among the self-harm patients. The independent t-test and z-test were used for between-group analyses of continuous variables. Logistic regression analysis was performed to determine if the following demographic characteristics were associated with gender: socioeconomic status (SES), relationship status, having dependents, level of education, and employment status. Logistic regression analysis was performed to determine if the demographic characteristics of patients were associated with the method of self-harm, intoxication at the time of self-harm, suicidal intent, impulsivity, reasons for self-harm, history of self-harm, and whether or not a hospital admission or admission to an emergency psychiatric unit was required. Odds ratios (OR) and 95% confidence intervals (CI) were calculated for each variable, and the threshold for statistical significance was set at $p<.05$.

Results

Sample characteristics

The gender composition of the sample was 59.5% (n=119) female and 40.5% (n=81) male, in a country where 51% of the population is female. Gender and age distribution of the sample together with the mean ages and standard deviations are given in Table 1. Gender differences in the age distribution were not statistically significant (z=0.735, p=0.464)

Table 1

Gender and age distribution of self-harm patients

	<12 years	12-17 years	18-29 years	30-39 years	40-49 years	50-59 years	60-69 years	>70 years	Mean (standard deviation)
Male n=81	0	5	38	16	14	4	3	1	32.42 years (13.073)
Female n=119	0	16	57	17	12	10	5	2	30.94 years (14.766)
Total (N=200)	0	21	95	33	26	14	8	3	31.54 years (14.09)

Note. Independent z-test was used for between-group analyses of the continuous variable: Mean age (years).

Gender differences in demographic characteristics

Demographic features of the sample by gender are shown in Table 2. The majority of the sample were Coloured (44%), English speaking (59.5%), Christian (32%), single (72.5%), without dependants (62%), with secondary level education (41.5%), unemployed (56%) and were of low socio-economic status (SES) (55%). Four of the women were pregnant. No statistically significant gender differences were observed with respect to ethnicity, home language, religious affiliation, relationship status, level of education, employment status, and SES. Statistically significant gender differences were however observed with respect to having dependants ($\chi^2=9.95$, p=0.019), with males approximately 2.2 times more likely than women to have no dependants (OR=2.224, 95% CI=1.135–4.382).

Table 2

Demographic characteristics of DSH patients, by gender

		Total		Male		Female				
		N	%	[a]n	%	[b]n	%	x^2	d.f	p
Ethnicity	Coloured	88	44%	32	39.51%	56	47.06%	9.048	4	0.06
	Black	66	33%	25	30.86%	41	34.45%			
	White	27	14%	11	13.58%	16	13.45%			
	Asian	8	4%	7	8.64%	1	0.84%			
	Not known	11	6%	6	7.41%	5	4.20%			
Home Language	English	119	59.50%	49	60.49%	70	58.82%	3.63	4	0.45

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

										9
	isiXhosa	37	18.50%	12	14.81%	25	21.01%			
	Afrikaans	37	18.50%	17	20.99%	20	16.81%			
	isiZulu	2	1.00%	0	0.00%	2	1.68%			
	Not known	5	2.50%	3	3.70%	2	1.68%			
Religious affiliation	Christian	64	32.00%	24	29.63%	40	33.61%	2.02	4	0.732
	Other not specified	43	21.50%	19	23.46%	24	20.17%			
	Islam	26	13.00%	11	13.58%	15	12.61%			
	Hindu	1	0.50%	1	1.23%	0	0.00%			
	Not known	66	33.00%	26	32.10%	40	33.61%			
Relationship status	Single	145	72.50%	62	76.54%	83	69.75%	6.83	5	0.234
	Married	33	16.50%	9	11.11%	24	20.17%			
	Divorced	11	5.50%	3	3.70%	8	6.72%			
	Widowed	6	3.00%	4	4.94%	2	1.68%			
	In a relationship	4	2.00%	2	2.47%	2	1.68%			
	Not known	1	0.50%	1	1.23%	0	0.00%			
Dependants	No dependents	124	62.00%	59	72.84%	65	54.62%	9.95	3	0.019*
	Dependents	69	34.50%	20	24.69%	49	41.18%			
	Pregnant	4	2.00%	0	0.00%	4	3.36%			
	Not known	3	1.50%	2	2.47%	1	0.84%			
[c]Level of education	Primary schooling	60	30.00%	19	23.46%	41	22.65%	3.174	4	0.529
	Secondary schooling	83	41.50%	37	45.68%	46	25.41%			
	Tertiary education	27	13.50%	13	16.05%	14	7.73%			
	Post grad degree	5	2.50%	2	2.47%	3	1.66%			
	Not known	25	12.50%	10	12.35%	15	8.29%			
Employment status	Unemployed	112	56.00%	44	54.32%	68	57.14%	4.67	4	0.323
	Employed	41	20.50%	22	27.16%	19	15.97%			
	Student	38	19.00%	12	14.81%	26	21.85%			
	Retired	4	2.00%	1	1.23%	3	2.52%			
	Not known	5	2.50%	2	2.47%	3	2.52%			
[d]Socioeconomic status (SES)	Low Socio-economic status (annual household income = ZAR 0 to ZAR 76 800)	110	55%	44	54.3	66	55.5	0.394	2	0.821
	High Socio-economic status (annual family income of ZAR 76 801 to ZAR 2 457 601)	80	40%	32	39.5	48	40.3			
	Not known	10	5%	5	6.2	5	4.2			

Note. N = 200. [a]n = 81. [b]n = 119. [c]Primary school = Grade 1 to 7 in the United States (US); Secondary school = Grade 8 to 12 in the US; Tertiary school = a Diploma or degree from a University after Grade 12 has been completed. [d]Socioeconomic status = at the time of the study 1 dollar was equal to approximately 11 ZAR. *$p < .05$

Logistic regression analysis was performed in order to test the extent to which gender is a function of the following demographic variables: SES, relationship status, having dependents, level of education, and employment status. As can be seen in Table 7, self-harm patients who were unemployed were approximately 5 times more likely to be women, when controlling for other demographic factors.

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Methods of self-harm

Details of the self-injurious behaviour by gender are presented in Table 3 along with information about the method used, whether or not patients reported substance use at the time of injury, stated intention when engaging in the behaviour, whether or not the act was impulsive or premeditated, and the precipitating reasons for the self-harm.

The most common methods of self-harm were prescription medication overdose (58%), non-prescription medication overdose (35%), lacerations (9.5%) and ingestion of poisons (8.5%).

Forty-three individuals (21.5%) used multiple methods of self-harm. Significant gender differences were observed with respect to use of prescription medication, lacerations and hanging as methods of self-harm. Women were approximately 2.8 times more likely than men to use prescription medications as a method of self-harm (χ^2=12.225, p=0.001, OR=2.8, 95% CI=1.499–5.252), males were 3.6 times more likely to present with lacerations (χ^2=6.79, p=0.013, OR=3.6, 95% CI=1.202–11.218). Men were also 5.5 times more likely to hang themselves than females (χ^2=7.65, p=0.008, OR=5.45, 95% CI=1.321–25.910).

Logistic regression analysis was performed to determine if demographic characteristics (i.e., gender, SES, relationship status, having dependents, level of education, and employment status) were associated with whether the method of self-harm involved tissue damage (i.e., lacerations, hanging or gunshot wounds) or self-poisoning. As can be seen in Table 7, men were approximately eight times (OR=7.82, 95% CI=2.53-24.1, p=.000) more likely than women to use some form of tissue damage as a method of self-harm compared to self-poisoning, when controlling for the other demographic characteristics.

Substance use at the time of self-harm

A total of 19.5% of the sample reported substance use at the time of self-injury, with no significant gender differences found (x^2= 2.34, p=0.126). Logistic regression analysis was performed to determine if demographic characteristics were associated with the use of substances at the time of self-harm. As seen in Table 7, patients with no dependents were approximately four times (OR=3.77, 95% CI=1.17-12.2, p=.026) more likely to have used substances at the time of self-harm, when controlling for other demographic characteristics.

Stated intention for self-harm

The most commonly reported intentions were: to die (32.5%), to communicate something (29%), to regulate the behaviour of someone else (21.5%) and to escape a situation (20%). Only 7.5% of patients reported that their self-harm was accidental. No statistically significant gender differences were observed with respect to patients' stated intention for engaging in self-harm. Of the sample, 39.5% reported that they had more than one intention when engaging in the act of self-harm, with statistically significant differences between the number of men (n=25) and women (n=54) reporting multiple intentions. Women were approximately 1.8 times more likely to report multiple intentions (x^2=4.248, p=0.039, OR=1.861, 95% CI=0.986-3.523).

Logistic regression analysis was performed to determine if demographic characteristics were associated with the stated intention being "to die". As seen in Table 7, patients who were not in a relationship (OR=3.20,95% CI=1.05-9.76, p=.041) and who were unemployed (OR=3.71, 95% CI=1.13-12.1, p=.030) were more likely to report that they intended "to die" as a result of their self-harm, when controlling for other demographic characteristics.

Impulsivity

A total of 47 patients (23.5%) reported that their self-harm was an impulsive act. No statistically significant differences were observed with respect to the number of men (n= 15) and the number of women (n=32) reporting their self-harm was impulsive (x^2=2.879, p=0.18, OR=0.618, 95% CI=0.770–3.429).

Logistic regression analysis showed that none of the demographic characteristics were associated with impulsive acts of self-harm (see Table 7).

Stated reason for self-harm

The most commonly reported reasons for engaging in self-harm were family conflict (35%), marital/romantic relationship difficulties (31%) and financial concerns (20%). Statistically significant gender differences were observed with respect to family conflict being cited as a reason for engaging in self-harm (χ^2=4.927, p=0.034) with women being two times more likely to cite family conflict as the reason for their behaviour (OR=2.0, 95% CI=1.034–3.888). Similarly, gender differences were observed with respect to patients citing psychiatric symptoms (i.e. insomnia, anxiety or depression) as the reason for engaging in self-harm (χ^2=4.508, p=0.034), with men being approximately 2.5 times more likely than women to cite psychiatric symptoms as the reason for self-harm (OR=2.477, 95% CI=0.978-6.35).

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Table 3
Nature of self-harm, by gender

		Total		Male		Female		χ^2	p-value	OR	95% CI
		N	**%**	**[a]n**	**%**	**[b]n**	**%**				
Method	Prescription medication	**116**	58.00%	35	43.21%	81	68.07%	12.225	0.001**	2.802	1.499-5.252
	Non-prescription medication	**70**	35.00%	24	29.63%	46	38.66%	1.726	0.189	1.487	0.785-2.863
	Laceration	**19**	9.50%	13	16.05%	6	5.04%	6.79	0.013*	3.6	1.202-11.218
	Ingestion of poison	**17**	8.50%	9	11.11%	8	6.72%	1.19	0.28	1.73	0.580-5.219
	Hanging	**13**	6.50%	10	12.35%	3	2.52%	7,65	0.008**	5.45	1.321-25.910
	Unsure	**1**	0.50%	0	0.00%	1	0.84%				
	Burn	**1**	0.50%	1	1.23%	0	0.00%				
	Asphyxiation	**2**	1.00%	1	1.23%	1	0.84%		1[t]		
	Throwing oneself in front of a train	**3**	1.50%	3	3.70%	0	0.00%				
	Jumping from height	**1**	0.50%	1	1.23%	0	0.00%				
	Gunshot	**0**	0.00%	0	0.00%	0	0.00%				
	More than one method	**43**	21.50%	16	19.75%	27	22.69%	0.246	0.62	0.839	0.395-1.772
Intoxication	Yes	**39**	19.50%	20	24.69%	19	15.97%	2.34	0.126	1.726	0.807-3.697
	No	**161**	80.50%	61	75.31%	100	84.03%				
Intention	To Die	**65**	32.50%	30	37.04%	35	29.41%	1.277	0.258	1.412	0.742-2.69
	To communicate something (e.g. Distress)	**58**	29.00%	22	27.16%	36	30.25%	0.224	0.636	1.163	0.594-2.285
	To regulate the behaviour of someone else	**43**	21.50%	12	14.81%	31	26.05%	3.605	0.058	2.026	0.918-4.530
	To escape a situation	**40**	20.00%	13	16.05%	27	22.69%	1.328	0.283	1.535	0.698-3.409
	To regulate emotional state	**21**	10.50%	6	7.41%	15	12.61%		0.348		
	Accidental	**15**	7.50%	6	7.41%	9	7.56%		1[t]		
	Not Known	**16**	8.00%	8	9.88%	8	6.72%				
	More than one intention	**79**	39.50%	25	30.86%	54	45.38%	4.248	0.039*	1.861	0.986-3.523
Impulsive act	Yes	**47**	23.50%	15	18.52%	32	26.89%	1.879	0.18	1.618	0.770-3.429
	No	**153**	76.50%	66	81.48%	87	73.11%				
	Not known	**0**									
Reasons	Family Conflict	**70**	35.00%	21	25.93%	49	41.18%	4.927	0.034*	2	1.034-3.888
	Marital/Romantic relationship issues	**62**	31.00%	25	30.86%	37	31.09%	0.001	0.973	1.011	0.525-1.949
	Financial Concerns	**40**	20.00%	15	18.52%	25	21.01%	0.187	0.666	1.17	0.543-2.539
	Psychiatric Illness	**25**	12.50%	15	18.52%	10	8.40%	4.508	0.034*	2.477	0.978-6.351
	Academic Concerns	**9**	4.50%	2	2.47%	7	5.88%		0.317[t]		
	Bereavement	**8**	4.00%	2	2.47%	6	5.04%		0.477[t]		
	Medical Illness	**15**	7.50%	6	7.41%	9	7.56%		1[t]		
	Trauma	**3**	1.50%	2	2.47%	1	0.84%		0.567[t]		
	Legal problems	**2**	1.00%	2	2.47%	0	0.00%				
	Isolated / lack of social support	**9**	4.50%	4	4.94%	5	4.20%		1[t]		
	Interpersonal conflict	**1**	0.50%	0	0.00%	1	0.84%				
	Pregnancy	**3**	1.50%	0	0.00%	3	2.52%				
	Not Known	**22**	11.00%	13	16.05%	9	7.56%				

Note. N = 200. [a]n = 81. [b]n = 119. Chi-square statistics were calculated for variables where the observed frequency was more than five. [t]Fisher's exact test was used in cells where the expected frequency was less than five. * $p < .05$. ** $p < .01$.

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Logistic regression analysis was performed to determine if demographic characteristics were associated with interpersonal reasons for self-harm (see Table 7). Patients in a relationship (OR=3.17, 95% CI_1.11-9.02, p=.031) and having a secondary level of education (OR=3.21, 95% CI=1.08-9.55, p=.037) were more likely to report interpersonal reasons for self-harm, when controlling for other demographic variables.

History of self-harm

Seventy-seven patients (38.5%) reported a history of self-harm, the frequency of which is given by gender in Table 4. There were no statistically significant gender differences with respect to history of self-harm (χ^2=0.003, p=0.956, OR=1.016, 95% CI=0.546-1.893).

Table 4

History of self-harm, by gender

		Total		Male		Female	
		N	%	[a]n	%	[b]n	%
History of DSH	No previous history	59	29.50%	23	28.40%	36	30.25%
	1 previous attempt	38	19.00%	13	16.05%	25	21.01%
	2 or more previous attempts	39	19.50%	18	22.22%	21	17.65%

Note. N = 200. [a]n = 81. [b]n = 119.

Logistic regression analysis was performed to determine if a history of self-harm was associated with demographic characteristics (see Table 7). Patients who reported a higher level of education were five times more likely (OR=4.97, 95% CI=1.79-13.8, p=.002) to report a history of self-harm, when controlling for other demographic variables.

Medical service utilisation

No medical interventions were required for 37.5% of patients (38.3% of men and 37% of women). No significant gender differences were observed between patients requiring medical intervention and those who did not (χ^2=0.035, p=0.852). The range of medical interventions required by self-harm patients is indicated in Table 5. The most common medical interventions were intra-venous medical treatment (54%), activated charcoal (13%) and intubation and ventilation (11%). Significant gender differences were observed with respect to medical treatment, with women being approximately three times more likely to require activated charcoal (X^2=5.61, p=0.018, OR=3.26, 95% CI=1.094-10.377) as would be expected given the higher incidence of self-poisoning among women in our sample.

Table 5

Range of medical interventions required by self-harm patients

	Total		**Men**		**Women**			**x^2**	**p**		
	N	**%**	[a]n	%	[b]n	%					
No intervention	75	37.50%	31	38.27%	44	36.97%		0.035	0.852		
IV or oral medical treatment	108	54.00%	44	54.32%	64	53.78%		0.006	1		
Activated charcoal	26	13.00%	5	6.17%	21	17.65%		5.61	0.018*	3.257	1.094-10.377
Intubation and ventilation	22	11.00%	10	12.35%	12	10.08%		0.252	0.616		
Suturing	7	3.50%	5	6.17%	2	1.68%		2.88[t]	0.09		
Surgical procedure	9	4.50%	7	8.64%	2	1.68%		2.88[t]	0.122		
Dialysis	9	4.50%	3	3.70%	6	5.04%		0.201[t]	0.741		
Urinary catheter	3	1.50%	1	1.23%	2	1.68%		0.065[t]	1		
Dressing of burn wound	1	0.50%	1	1.23%	0	0.00%					

Note. N = 200. [a]n = 81. [b]n = 119. [t]Fisher's exact test was used in cells where the expected frequency was less than five: activated charcoal.

* $p < .05$.

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

The number of self-harm patients requiring admission to the hospital, as well as the level of admission and the total and average length of stay, is presented in Table 6. Of the 200 patients, 68 (34%) were treated in the ER and discharged. Statistically significant differences were observed between the number of men (n=18) and women (n=50) who did not require a hospital admission (x^2=8.415, p=0.004), with women approximately 2.5 times more likely to be treated in the ER and discharged (OR=2.536, 95% CI=1.282–5.055).

Logistic regression analysis showed that there was no association between requiring a hospital admission and demographic characteristics (see Table 7).

The mean length of stay in the hospital for patients requiring admission (n=126) was 5.27 day (SD=10.95, range=2-100, total number of days=1 053). The mean length of stay for men requiring admission (n=63) was 7.05 days (SD=7.27, range=2-35, total number of days=490) while for women (n=69) it was 4.73 days (SD=12.83, range=2-100, total number of days=563). No statistically significant gender differences were observed with respect to the length of hospital admission for men or women (t=0.717, p=0.475).

No statistically significant gender differences were observed with respect to the proportion of patients admitted to an Intensive Care Unit (p=1.00), short stay medical unit (x^2=0.601, p=0.438) or general medical/surgical ward (p=1.00).

Slightly less than half of the patients (42%) required admission to the emergency psychiatric unit once their physical injuries had been treated. There was a statistically significant difference between the number of men (n=41) and the number of women (n=43) admitted to the emergency psychiatric unit, with men 1.8 times more likely to require a psychiatric admission (x^2=4.15, p=0.04, OR=1.81, 95% CI=0.980–3.353).

Table 6

Level of hospital admission required and duration of stay in hospital, by gender

	Number of patients			Total number of days spent in each ward			Mean number of days (standard deviation)		
	Total	Male	Female	**Total**	Male	Female	**Total**	Male	Female
Treated in casualty and discharged	**68**	18	50	**-**	-	-	**-**	-	-
Admitted to short stay medical unit	**51**	23	28	**140**	72	68	**2.75 (1.58)**	3.13 (1.30)	2.43 (1.72)
ICU or high care	**14**	6	8	**70**	31	39	**5.00 (3.98)**	5.2 (3.53)	4.88 (4.28)
Admitted to long-stay medical or surgical ward	**15**	6	9	**304**	60	244	**20.27 (28.83)**	10 (7.87)	2.11 (35.03)
Admitted to emergency psychiatric unit	**84**	41	43	**539**	327	212	**6.42 (5.57)**	8 (7.16)	4.93 (2.67)

The GCS mean of all self-harm patients was 13.45 (SD=3.299), while for men it was 12.81 (SD=3.907) and women 13.85 (SD=2.791). No significant gender differences were found between the GCS scores of male and female self-harm patients (t =1.3605, p=0.175).

Although it is standard practice for the Pierce Suicidal Intent Scale (PSIS) to be administered to all self-harm patients treated at the hospital, we found that these were only done for 106 (53%) of the patients (35 men and 71 women). Men were approximately 2 times more likely than women not to have their PSIS assessed (χ^2=5.24, p=0.030, OR=1.94, 95% CI=1.06-3.59). The mean PSIS score for the sample was 9.38 (SD=4.97). The mean PSIS score for men was 10.5 (SD=5.20) and women 8.85 (SD=4.80), which are not significantly different (t=1.58, p=0.117).

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Table 7

Results of Logistic Regression Analyses

Predictors	[a]Method of self-harm		[a]Intoxication at the time of self-harm		[a]Suicidal self-injury		[a]Impulsive act		[a]Interper-sonal reasons for self-harm		[a]History of self-harm		[a]Hospital admission required		[a]Admission to an emergency psychiatric unit		[b]Gender	
	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*
SES	.526 (.191-1.45)	.215	1.042 (.460-2.36)	.921	.649 (.312-1.35)	.247	.676 (312-1.47)	.322	1.106 (.550-2.22)	.778	1.51 (.789-2.91)	.213	.749 (.404-1.39)	.360	1.03 (.537-1.98)	.927	.846 (.444-1.61)	.612
Relationship Status	.476 (.082-2.76)	.408	1.07 (.296-3.88)	.916	3.20 (1.05-9.76)	.041*	.823 (.279-2.42)	.723	3.17 (1.11-9.02)	.031*	1.255 (.471-3.34)	.649	.588 (.237-1.46)	.251	.957 (.356-2.57)	.931	.765 (.288-2.03)	.591
Dependents	2.25 (.490-10.3)	.298	3.77 (1.17-12.2)	.026*	.947 (.399-2.25)	.901	1.01 (.412-2.50)	.974	.829 (.355-1.94)	.666	.986 (.440-2.21)	.973	1.08 (.506-2.30)	.845	.464 (.202-1.06)	.070	.387 (.174-.861)	.387
Level of education (overall) [base = Primary school]		.680		.129		.158		.280		.049		.001		.310		.624		.456
Level of education (Secondary school)	.520 (.118-2.29)	.387	2.60 (.949-7.12)	.063	1.48 (.486-4.51)	.490	.511 (.210-1.24)	.139	3.21 (1.08-9.55)	.037*	4.00 (1.82-8.88)	.001**	.978 (.477-2.00)	.951	.737 (.342-1.59)	.437	1.83 (.681-4.92)	.231
Level of education (Tertiary school)	.599 (.143-2.51)	.484	1.01 (.327-3.12)	.988	.659 (.241-1.81)	.417	.920 (.297-2.85)	.885	1.36 (.499-3.69)	.550	4.97 (1.79-13.8)	.002**	1.99 (.736-5.39)	.175	.636 (.230-1.76)	.383	1.32 (.515-3.39)	.562
Employment status (overall)		.738		.092		.095		.325		.651		.463		.423		.095		.019
Employment status (Unemployed)	.617 (.102-3.74)	.600	.726 (.212-2.49)	.610	3.71 (1.13-12.1)	.030*	.474 (.172-1.30)	.148	.716 (.278-1.84)	.488	1.24 (.502-3.07)	.640	1.10 (.453-2.69)	.828	.476 (.192-1.18)	.110	4.71 (1.60-13.9)	.005**
Employment status (Employed)	1.197 (.332-4.322)	.784	.272 (.071-1.04)	.057	1.72 (.674-4.37)	.258	.493 (.147-1.65)	.251	.590 (.189-1.84)	.364	.710 (.243-2.08)	.531	.635 (.224-1.81)	.395	1.10 (.382-3.14)	.865	2.13 (.910-4.99)	.081
Gender (Female) [base = male]	7.82 (2.53-24.1)	.000***	1.16 (.519-2.60	.716	1.39 (.677-2.85)	.370	1.90 (.861-4.20)	.112	1.50 (.733-3.06)	.267	1.13 (.578-2.23)	.715	.941 (.497-1.78)	.851	1.48 (.758-2.89)	.251	———	———

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Note. [a]Predictors: Socioeconomic status, Relationship status, Dependents, Level of education, Employment status, Gender. [b]Predictors: Socioeconomic status, Relationship status, Dependents, Level of education, Employment status. *p<.05, **p<01, ***p<001.

Discussion

Statistically significant gender differences were not observed with respect to the proportion of men and women in the sample of self-harm patients. Likewise, men and women were remarkably similar with respect to demographic characteristics and clinical features. The only significant demographic difference between male and female DSH patients was that men were approximately 2.6 times more likely than women to have dependents. This finding suggests that, among our sample, having dependents was a protective factor against self-harm for women but not for men. This is consistent with other studies which found that having children protects women against self-harm (Uggla & Mace, 2013; De Winter, Leezer, & de Mequita, 2014)

Gender differences were noted with respect to method of self-harm. Male DSH patients were approximately 5.5 times more likely than women to injure themselves by hanging and 3.6 times more likely to cut themselves. By contrast women were approximately 2.8 times more likely to use prescription medications as the method of self-injury. Our findings are consistent with studies that show that methods of self-harm are a function of gender, with men favouring methods of self-harm that entail tissue damage (such as hanging and laceration) and women opting for self-poisoning (Denning, Conwell, King, & Cox, 2000; Hawton, 2000; Hawton & Heeringen, 2009). Rates of admissions to medical and surgical units were also not statistically different for men and women. Women were however 2.5 times more likely to be treated in the ER and discharged while men were approximately 1.8 times more likely to be admitted to an emergency psychiatric unit. Women were also 2.2 times less likely to have their PSIS assessed. This apparent gender difference in management of self-harm patients warrants more careful analysis and cannot be accounted for with the data we collected. The finding is, however, interesting in the light of literature which suggests that the gender of the person engaging in suicidal behaviour influences how others appraise the act (Canetto, 1997; Lester, 1995; Linehan, 1973), which may influence clinical management of self-harm patients depending on their gender.

Our findings seem incongruent with reports that rates of self-harm are twice as common among women in the general population of SA (Joe et al., 2008) and with other hospital-based studies which suggest that women constitute a significantly higher proportion of self-harm patients in the country (Naidoo & Pillay, 1993; Naidoo & Schlebusch, 2013; Raubenheimer & Jenkins, 2015). Our findings also seem incongruent with reports suggesting that men are more likely to engage in methods of self-harm which have a higher lethality and hence will require higher levels of medical intervention than women following self-harm. One possible explanation is that the similarities observed between men and women with respect to the seriousness of their injuries may be a function of the country's public health care system. Within SA's health care system, access to medical care is difficult and individuals who engage in less potentially lethal forms of self-harm may never seek medical treatment. There is a high demand for emergency care within the hospital where our study was conducted and patients whose injuries are not life threatening might wait for six to eight hours to receive medical attention. It is possible that individuals who self-harm but who only sustain minor injuries (regardless of their level of emotional distress and their level of suicidal intent) may never arrive in the hospital or may leave the hospital before receiving treatment and are thus not reflected in our data. This is an issue in need of further attention, particularly because of the implications it may have for gender inequality in the care received by female self-harm patients. This finding also suggests that hospital based suicide prevention interventions may fail to reach the significant group of female patients who self-harm but do not present for treatment at hospitals.

The way in which self-harm data from LMICs may be influenced by macro-level factors, such as the delivery of care within the health system or barriers to accessing medical care, has not received much attention in the literature. Attempts to explain gender differences in patterns of self-harm in LMICs, which only focus on gender roles and cultural factors, may ignore important structural factors such as resource allocation and the organisation of care within hospitals.

The fact that data for this study was collected from one urban hospital is a limitation. It would be helpful to extend this work to hospitals in other local cities and rural areas to establish if similar patterns are observed.

Conclusion

On the surface our data appear to be congruent with studies from other LMICs which report that rates of self-harm among men are higher than those typically reported in high income countries. However, the significant gender similarities observed in our data suggest that gender patterns of self-harm cannot be understood simply as a function of gender roles and

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

cultural factors within the country. We have suggested that our findings might at least in part be a function of the organisation of care and barriers to accessing medical attention within the country's health care system. This argument highlights the importance of exercising caution when interpreting data on gender differences in patterns of self-harm among patients seeking treatment in hospitals in LMICs. It is possible that hospital based studies in countries where medical resources are scarce and where there are barriers to accessing medical care are only representative of the most medically serious acts of self-harm and cannot be meaningfully compared to rates reported in high income, well-resourced settings.

References

Andover, M. S., Pepper, C. M., & Gibb, B. E. (2007). Self-mutilation and coping strategies in a college sample. *Suicide and Life-Threatening Behavior*, *37*(2), 238-243.

Andover, M. S., Primack, J. M., Gibb, B. E., & Pepper, C. M. (2010). An examination of non-suicidal self-injury in men: Do men differ from women in basic NSSI characteristics? *Archives of Suicide Research*, *14*(1), 79-88.

Arensman, E., Fitzgerald, T., Bjerke, T., Cooper, J., Corcoran, P., De Leo, D., . . . Van Heeringen, K. (2008). Deliberate self-harm and suicide: Gender-specific trends in eight European regions. *Journal of Epidemiology and Community Health*, *62*, A1-A36.

Bjärehed, J., & Lundh, L. G. (2008). Deliberate self-harm in 14-year-old adolescents: How frequent is it, and how is it associated with psychopathology, relationship variables, and styles of emotional regulation? *Cognitive Behaviour Therapy*, *37*(1), 26-37.

Bland, R. C., Newman, S. C., Dyck, R. J., & Orn, H. (1990). Prevalence of psychiatric disorders and suicide attempts in a prison population. *The Canadian Journal of Psychiatry/La Revue canadienne de psychiatrie*, *35*(5), 407-413.

Burrows, S., & Schlebusch, L. (2008). Priorities and prevention possibilities for reducing suicidal behaviour. In A. Van Niekerk, S. Suffla, & M. Seedat (Eds.), *Crime, violence and injury prevention in South Africa: Data to action* (pp. 173-201). Tygerberg: MRC-UNISA Crime, Violence and Injury Lead Programme.

Canetto, S. S. (1997). Meanings of gender and suicidal behaviour during adolescence. *Suicide and Life-threatening Behavior, 27*(4): 339-351.

Canetto, S. S., & Sakinofsky, I. (1998). The gender paradox in suicide. *Suicide and Life-Threatening Behavior*, *28*(1), 1-23.

Denning, D. G., Conwell, Y., King, D., & Cox, C. (2000). Method choice, intent, and gender in completed suicide. *Suicide and Life-Threatening Behavior, 30*(3), 282-288. doi:10.1111/j.1943-278X.2000.tb00992.x

De Winter, R., Leezer, Y., & de Mequita, J. B. (2014). Gender differences and characteristics in mental health care patients in The Hague: 1999 to 2013 [PowerPoint Slide]. Retrieved from http://suicidaliteit.nl/2014/Talinn/genderdifferensesTallinn%20(2)%20%5BAlleen-lezen%5D%20%5BCompatibiliteitsmodus%5D.pdf

Evans, E., Hawton, K., & Rodham, K. (2005). In what ways are adolescents who engage in self-harm or experience thoughts of self-harm different in terms of help-seeking, communication and coping strategies? *Journal of Adolescence*, *28*(4), 573-587.

Fernandez-Pol, B. (1986). Characteristics of 77 Puerto Ricans who attempted suicide. *American Journal of Psychiatry*, *143*(11), 1460-1463.

Gratz, K. L., Latzman, R. D., Young, J., Heiden, L. J., Damon, J., Hight, T., & Tull, M. T. (2012). Deliberate self-harm among underserved adolescents: The moderating roles of gender, race, and school-level and association with borderline personality features. *Personality Disorders: Theory, Research, and Treatment*, *3*(1), 39-54.

Harris, B., Goudge, J., Ataguba, J. E., McIntyre, D., Nxumalo, N., Jikwana, S., & Chersich, M. (2011). Inequities in access to health care in South Africa. *Journal of Public Health Policy*, *32*, S102-S123.

Hawton, K. (2000). Sex and suicide gender differences in suicidal behaviour. *The British Journal of Psychiatry*, *177*(6), 484-485.

Hawton, K., Bergen, H., Casey, D., Simkin, S., Palmer, B., Cooper, J., Kapur, N., Horrocks, J., House, A., Lilley, R., Noble, R., Owens, D. (2007). Self-

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

harm in England: A tale of three cities. *Social Psychiatry and Psychiatric Epidemiology*, *42*(7), 513-521.

Hawton, K., & van Heeringen, K. (2009). Suicide. *The Lancet, 373*(9672), 1372-1381. doi:10.1016/S0140-6736(09)60372-X

Joe, S., Stein, D. J., Seedat, S., Herman, A., & Williams, D. R. (2008). Non-fatal suicidal behavior among South Africans. *Social Psychiatry and Psychiatric Epidemiology*, *43*(6), 454-461.

Kebede, D., & Alem, A. (1999). Suicide attempts and ideation among adults in Addis Ababa, Ethiopia. *Acta Psychiatrica Scandinavica*, *100*(S397), 35-39.

Kerkhof, A. J., & Bernasco, W. (1990). Suicidal behavior in jails and prisons in the Netherlands: Incidence, characteristics, and prevention. *Suicide and Life-Threatening Behavior*, *20*(2), 123-137.

Kerkhof, A., Schmidtke, A., Bille-Brahe, U., De Leo, D., & Lönnqvist, J. (1994). *Attempted suicide in Europe: Findings from the multicentre study on parasuicide.* Leiden, the Netherlands: DSWO Press.

Kessler, R. C., Berglund, P., Borges, G., Nock, M., & Wang, P. S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990-1992 to 2001-2003. *Jama*, *293*(20), 2487-2495.

Khan, M. M., & Reza, H. (1998). Gender differences in nonfatal suicidal behavior in Pakistan: Significance of sociocultural factors. *Suicide and Life-threatening Behavior, 28*(1), 62-68.

Kinyanda, E., Hjelmeland, H., & Musisi, S. (2004). Deliberate self-harm as seen in Kampala, Uganda. *Social Psychiatry and Psychiatric Epidemiology*, *39*(4), 318-325.

Klonsky, E. D. (2007). The functions of deliberate self-injury: A review of the evidence. *Clinical Psychology Review*, *27*(2), 226-239.

Klonsky, E. D., & Muehlenkamp, J. J. (2007). Self-injury: A research review for the practitioner. *Journal of Clinical Psychology*, *63*(11), 1045-1056.

Kumar, C. S., Mohan, R., Ranjith, G., & Chandrasekaran, R. (2006). Characteristics of high intent suicide attempters admitted to a general hospital. *Journal of Affective Disorders*, *91*(1), 77-81.

Lester, D. (1995). Preventing suicide in women and men. *Crisis, 16*(2), 79-84.

Linehan, M. M. (1973). Suicide and attempted suicide: Study of perceived sex differences. *Perceptual and Motor Skills, 37*(1), 31–34.

Mayosi, B. M., Lawn, J. E., van Niekerk, A., Bradshaw, D., Karim, S. S. A., Coovadia, H. M., & Lancet South Africa team. (2012). Health in South Africa: Changes and challenges since 2009. *The Lancet*, *380*(9858), 2029-2043.

Møhl, B., & Skandsen, A. (2012). The prevalence and distribution of self-harm among Danish high school students. *Personality and Mental Health*, *6*(2), 147-155.

Mościcki, E. K. (1994). Gender differences in completed and attempted suicides. *Annals of Epidemiology*, *4*(2), 152-158.

Mościcki, E. K. (2014). Suicidal behaviors among adults. In M. K. Nock (Ed.), *The Oxford handbook of suicide and self-injury* (pp. 82-112). New York: Oxford University Press.

Muehlenkamp, J. J., & Gutierrez, P. M. (2004). An investigation of differences between self-injurious behavior and suicide attempts in a sample of adolescents. *Suicide and Life-Threatening Behavior*, *34*(1), 12-23.

Muehlenkamp, J. J., Williams, K. L., Gutierrez, P. M., & Claes, L. (2009). Rates of non-suicidal self-injury in high school students across five years. *Archives of Suicide Research*, *13*(4), 317-329.

Naidoo, P., & Pillay, B. J. (1993). Parasuicide in a general hospital in South Africa. *Psychological Reports*, *72*(3), 979-982.

Naidoo, S. S., & Schlebusch, L. (2013). Sociodemographic and clinical profiles of suicidal patients requiring admission to hospitals south of Durban. *South African Family Practice*, *55*(4), 373-379.

Nock, M. K., & Kessler, R. C. (2006). Prevalence of and risk factors for suicide attempts versus suicide gestures: Analysis of the National

Suicidology Online
open access journal
www.suicidology-online.com
ISSN 2078-5488

Comorbidity Survey. *Journal of Abnormal Psychology*, *115*(3), 616-623.

Norusis, M. J. (1990). Statistical package for the social sciences. *Professional statistics release*, 7

Odejide, A. O., Williams, A. O., Ohaeri, J. U., & Ikuesan, B. A. (1986). The epidemiology of deliberate self-harm. The Ibadan experience. *The British Journal of Psychiatry*, *149*(6), 734-737.

Okasha, A., & Lotaif, F. (1979). Attempted suicide. A*cta Psychiatrica Scandinavica*, *60*(1), 69-75.

Ostamo, A., & Lönnqvist, J. (1994). The epidemiology of attempted suicide in Helsinki, 1989–1993. In A. Kerkhof, A. Schmidtke, U. Bille-Brahe, D. De Leo, & J. Lönnqvist (Eds.), *Attempted suicide in Europe: Findings from the multicentre study on parasuicide by the WHO Regional Office for Europe* (pp. 137-158). Leiden, the Netherlands: DSWO Press.

Petersen, I., & Lund, C. (2011). Mental health service delivery in South Africa from 2000 to 2010: One step forward, one step back. *South African Medical Journal*, *101*(10), 751-757.

Pierce, D. W. (1977). Suicidal intent in self-injury. *The British Journal of Psychiatry, 130*(4), 377-385.

Platt, S., Bille-Brahe, U., Kerkhof, A., Schmidtke, A., Bjerke, T., Crepet, P., De Leo, D., Haring, C., Lonnqvist, J., Michel, K. (1992). Parasuicide in Europe: the WHO/EURO multicentre study on parasuicide. I. Introduction and preliminary analysis for 1989. *Acta Psychiatrica Scandinavica, 85*, 97-104

Raubenheimer, L., & Jenkins, L. S. (2015). An evaluation of factors underlying suicide attempts in patients presenting at George Hospital emergency centre. *South African Family Practice*, *57*(2), 1-7.

Schmidtke, A., Bille-Brahe, U., Kerkhof, A., & De Leo, D. (2004). *Suicidal behaviour in Europe – Results from the WHO/EURO multicentre study on suicidal behaviour*. Göttingen: Hogrefe & Huber.

Skegg, K. (2005). Self-harm. *The Lancet*, *366*(9495), 1471-1483.

Sornberger, M. J., Heath, N. L., Toste, J. R., & McLouth, R. (2012). Nonsuicidal self-injury and gender: Patterns of prevalence, methods, and locations among adolescents. *Suicide and Life-Threatening Behavior*, *42*(3), 266-278.

Sourander, A., Aromaa, M., Pihlakoski, L., Haavisto, A., Rautava, P., Helenius, H., & Sillanpää, M. (2006). Early predictors of deliberate self-harm among adolescents. A prospective follow-up study from age 3 to age 15. *Journal of Affective Disorders*, *93*(1), 87-96.

Uggla, C., & Mace, R. (2015). Someone to live for: effects of partner and dependent children on preventable death in a population wide sample from Northern Ireland. *Evolution and Human Behavior, 36*(1), 1-7.

Whitehead, P. C., Johnson, F. G., & Ferrence, R. (1973). Measuring the incidence of self-injury: Some methodological and design considerations. *American Journal of Orthopsychiatry*, *43*(1), 142.