

### **Abstract**

**Objective:** Despite their widespread use, there is limited evidence on whether crisis lines are effective, how to identify callers at risk or the best ways of supporting callers to prevent suicide.

This study compared the features of callers and call patterns in service users who had died by suicide with those who were currently alive from 2008-2011.

**Methods:** Using information contained on Contact's (Northern Ireland's "Lifeline" service) Client Information Management System (CIMS), 118 deaths by suicide from 2008-2011 were compared with a matched control group (matched on age, gender and main presenting issue on first contact) who had not died by suicide.

**Results:** Clients who had "check-in" calls were significantly less likely to die by suicide. Those with a substance dependency or those who had made a prior suicide attempt were significantly more likely to die by suicide. Duration of service access had a negative association with suicide risk.

**Conclusions:** "Check in" calls are an important part of the service. Information on previous suicide attempts and substance dependency may be useful in identifying callers who may benefit from proactive support and outreach. Wider interventions are needed to promote service user follow-up and to encourage longer-term engagement with the service.

**Keywords:** suicide; crisis line; substance dependence.

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### **Characteristics of Lifeline, crisis line, service users who have died by suicide**

Crisis Lines are among the oldest suicide prevention resources in the US and the UK (Gould, Kalafat, Harris, Jimec & Kleinman, 2007). They are based on the rationale that suicide is often preceded by a crisis and contemplated with psychological ambivalence, both of which can be addressed, supported and intervened upon if necessary by specialist counsellors with expertise in suicide prevention (Woodward & Wyllie, 2016). Most research on crisis lines has focused on caller assessment, evaluation of the service and changes in caller crisis levels, or suicide risk following the call (Gould, Kimmie, Munfakh, Kleinman & Lake, 2012). Despite their widespread use, there is limited evidence on whether they are effective, how to identify callers at risk or the best ways of supporting callers to prevent suicide.

Franklin et al. (2017) present a summary of suicide risk factors and warning signs for suicidal thoughts and behaviours (STB). These include factors such as hopelessness, perceived burdensomeness, physical or mental health disorders, life trauma, childhood adversities, prior suicide attempts, having a suicide plan, and access to lethal means. Similarly, in examination of the Coroner's files of those who had died by suicide in Northern Ireland (NI), O'Neill, Corry, McFeeters, Murphy and Bunting (2016) found that 61% of cases had recorded adverse events (relationship and interpersonal difficulties, mental health disorders, physical illness, bereavement, and employment / financial crisis).

These risk factors align with the theoretical frameworks which are used to understand suicidal behaviour. For example, under the Integrated Motivational-Volitional model, these factors would each be categorised as either motivational factors (i.e. those associated with the emergence of suicidal ideation) or volitional factors (i.e. those which increase the likelihood of transition from suicidal ideation to either plan or attempt) (O'Connor & Nock, 2014). Similarly, within the Interpersonal Theory of Suicide (Joiner, 2005, VanOrden, Witte, Cukrowicz, Braithwaite, Selby

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&Joiner, 2010), each factor could be encompassed within either the simultaneous presence of thwarted belongingness and perceived burdensomeness (and hopelessness about these states) or the acquired capability to engage in suicidal behaviour, which may be separate from the desire to engage in suicidal behaviour (Joiner, 2005, VanOrden et al., 2010).

Despite the availability of information on risk factors it remains difficult to predict who will die by suicide and the UK's National Confidential Inquiry into Suicide and Homicide found that on last contact prior to death by suicide, clinicians often rated the immediate risk as either low or none (Appleby et al., 2016). Better information is needed to formulate effective interventions and link suicidal ideation to potential future action as most risk factors fail to differentiate attempters from contemplators (Klonsky & May 2014). Cross nationally, 28 countries are known to have national suicide prevention strategies (WHO, 2014), and these usually comprise public and physician education, media strategies, screening, restricting access to suicide means, treatments, and internet or crisis line support (Zalsman et al., 2016). However, the efficacy of the components of these strategies, particularly the impact of crisis lines remains largely unknown (Zalsman et al., 2016).

Suicide rates in NI are of particular concern as whilst rates have fallen in England, Scotland and Ireland, suicide rates have increased in NI and Wales, and the suicide rates in NI remain higher than other UK nations (Samaritans 2017). Analyses have shown the association with the years of violence known as the Troubles (O'Neill et al., 2014) and there remain concerns about the transgenerational transmission of mental illness and trauma here (O'Connor & O'Neill, 2015). Lifeline is the NI regional 24/7 crisis line. It was launched as part of the Protect Life suicide prevention strategy in NI in 2008 (Department of Health, Social Services and Public Safety, 2012). The service is provided by Contact, under licence to the PHA, the commissioner and Protect Life strategy lead. The helpline is staffed by professionally qualified crisis counsellors who handled 90000+ calls in 2014 (Contact, 2014).

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Since its launch in 2008 the Lifeline service has supported over 40,000 people. Tragically across this period, over 130 of these service users have died by suicide. Using data from a crisis line (Lifeline, run by Contact, NI), the current study examines whether a deceased group differs significantly from a matched control group in terms of known risk factors for suicide such as demographic variables, adverse life events, physical and mental health and patterns of service use. The research seeks to understand the characteristics of Lifeline, crisis line, service users who have died by suicide.

### **Methodology**

#### *Design*

This study compared the characteristics and service use patterns of Lifeline clients who died by suicide with a matched group of those who had not died. In the initial contact with each client, both current and historical clinical information (particularly regarding known risk factors) were collected by the Lifeline counsellor so that they could formulate the most effective and appropriate intervention needed at the critical time. Also, for every service user death by suicide, Contact completed an internal Serious Adverse Incident (SAI) investigation, and a report on each case is produced to examine potential learning. All such risk assessment and intervention information was stored by the service provider.

For the current study data was extracted from SAI reports and Contact's Client Information Management System (CIMS) and electronically recorded on an internal database. Any data unavailable in the CIMS database was accessed via the SAI reports and the assessments and call records.

#### *Sample*

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Data was extracted for 118 deaths from 2008-2014. These deaths were reported to Contact as death by suicide through a variety of sources such as family, friends, community organisations, GP or health trust. All reports were corroborated by the client's GP or the relevant HSC trust. Data was extracted from SAI reports and the CIMS for 118 deaths from 2008-2014 and electronically recorded on an internal database for analysis.

Prior suicidal thoughts and behaviours, age and sex all represent strong predictors for death by suicide (O'Connor & Nock, 2014). Therefore, those who had died by suicide were compared to the overall Lifeline population on the sex, age and main presenting issue on first contact (see Table 1). The deceased group appeared almost the converse of the overall Lifeline population (n=40,700) in terms of sex breakdown. Differences in age patterns were also evident. Clients aged 17 and under, and over 54 years were under-represented in the deceased group compared to the overall Lifeline population. These two age groups accounted for almost 36% of the Lifeline population but only 8.7% of the deceased group. The remaining age group, 18-54 years, accounted for 64% of the overall Lifeline group but almost 92% of the deceased group. There was a disproportionate number of callers with no STB in the whole Lifeline population (see Table 1). In the overall Lifeline population, 27% presented on first call with either suicide or suicidal ideation, compared with two thirds of the deceased group (Table 1).

This study wanted to know how those who die by suicide differ from those who do not, beyond the recognised primary risk factors of prior STB, age and sex. Based on these differences, it was considered more prudent to use a matched control design. A control group was also used by Gould et al. (2012), although it was not matched. The use of matched control groups on research on suicide decedents (as opposed to overall populations) is quite common practice (e.g. Nock et al., 2017). A matched control group (n=118) of service users who had not died by suicide was extracted from Contact's CIMS. These were matched to those who had died by suicide based on sex, age (within 3 years) and main presenting issue on first call.

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[Insert Table 1 about here]

### *Design*

T-tests, chi-square tests and logistic regression were used to analyse secondary data extracted from Contact's SAI reports on service user death by suicide and CIMS reports on service users who had not died by suicide.

### *Measures*

The outcome variable was deceased/not deceased. The information gathered was all self-reported by clients, or on occasion may have been supplied by third parties such as health professionals or family and friends. Variables for analysis were selected based on a review of the literature and extracted from the SAIs and CIMS.

### *Demographics*

Demographics considered were sexual orientation (heterosexual (n=177)/non-heterosexual (n=12)), employment status (employed (n=47)/unemployed (n=73)/unable to work due to illness (n=72)) and whether the individual was in a relationship (no (n=154)/yes (n=63)). The non-heterosexual group included those who identified as homosexual or bisexual. Employment status was recorded based on eight categories, which were amalgamated into three, in order to allow sufficient cell size for analysis. The "currently employed" group consisted of those who were employed and also the self-employed. The "currently unemployed" group consisted of those who were unemployed and also those who had been made redundant. The "currently unable to work due to illness" consisted of people who were on incapacity benefits, and also those who were not currently working or absent from work due to sickness. Due to the small numbers, the retired (n=2) and those in training and education (n=12), and those whose occupation was missing (n=31) were collapsed into an "other" category and were not included in analyses of occupation.

### *Prior self-harm and suicidal behaviour*

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Factors considered under prior self-harm and suicidal behaviour were, whether or not the individual reported a history of self-harm (no, n=103; yes, n=103), prior suicidal ideation (no, n=14; yes, n=210), and finally whether or not the individuals reported previous suicide attempts (no, n=46; yes, n=169). Numbers of previous attempts ranged from 0-20, with the mean number of previous attempts being 2.26 (SD=2.56).

## *Lifeline service use*

Factors considered under service use were duration of service access (n=236, mean=546.84 days, sd=695.99 days), whether or not there was contact with statutory mental health services in addition to their contact with Lifeline (no, n=53; yes, n=169), check ins provided (no, n=131; yes, n=105), referrals out made to urgent or emergency services (no, n=133; yes, n=103), and whether Lifeline follow on support was offered (no, n=58; yes, n=178).

## *Physical and Mental Health*

Health variables considered were whether or not the individual had a diagnosis of depression (no, n=59; yes, n=135), anxiety (no, n=140; yes, n=54), a diagnosis of personality disorder (no, n=169; yes, n=25), a diagnosis of psychosis (no, n=176; yes, n=18), was substance dependent (no, n=74; yes, n=127), had an illness or disability (no, n=156; yes, n=42), and was prescribed medication (no, n=25; yes, n=147).

## *Ethical issues*

Ethical approval was obtained from both the host academic institution and the service provider. To protect the confidentiality of the deceased and the bereaved, cases were electronically recorded in a secure database and Lifeline unique identifiers were double coded for additional security. All information was encrypted at source. An internal anonymous, password protected, database was

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then created to gather all information for this and was then double coded for additional security and to protect confidentiality of all cases.

## **Data Analysis**

In the case of some variables, there was missing data (which explains why the frequencies do not add to the sample total). Reasons for this can include inconsistencies in the data collected or the person refusing to answer. Data was analysed using the IBM SPSS package Version 24. To minimise the impact of missing data on the analyses, hot deck imputation was used. Hot deck imputation involves replacing a missing value, with the value of a similar “donor” in the dataset that matches the “donee” in the dataset with the missing information (Myers, 2011). Analyses took the form of chi square analyses in the case of categorical variables, t-test in the case of numeric variables, and finally binary logistic regression analysis. Only those variables which documented statistically significant associations within the chi squared or t-test analyses, were entered into the binary logistic regression analysis.

## **Results**

### ***Predictors of death by suicide***

#### *Demographics*

Chi-square tests of independence were performed to examine the association between death by suicide and each of the demographic predictors. The association between death by suicide and sexual orientation was statistically significant (see Table 2) with non-heterosexuals being less likely to die by suicide than heterosexuals. There was no significant association between death by suicide and either employment ( $X^2(2, N=192)=2.59, p > .05$ ), or being in a relationship ( $X^2(1, N=217)=1.83, p > .05$ ).

[Insert Table 2 about here]

#### *Prior self-harm and suicidal behaviour*



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Chi-square tests of independence were performed to examine the relation between death by suicide and each of the prior self-harm and suicidal behaviour predictors. The association between death by suicide and prior suicidal ideation was statistically significant, as was the association between death by suicide and whether or not, the individual had made prior suicide attempts (see Table 3). The association between death by suicide and prior self-harm was not statistically significant ( $X^2(1, N=206)=0.96, p >.05$ ).

[Insert Table 3 about here]

## *Lifeline service use*

Chi-square tests were undertaken to examine the association between death by suicide and each of the Lifeline service use predictors: contact with statutory services, check ins, referrals out made to urgent or emergency services, and Lifeline follow on support offered. Death by suicide was associated with a lower likelihood of having received check ins (versus not) and having received a referral to urgent or emergency services (versus not) (see Table 4). T-tests showed that, compared to those who were not deceased ( $n=118$ ), those who were deceased ( $n=118$ ) had significantly shorter durations of service access (mean<sub>1</sub>=251.32 days, sd=392.57 days, mean<sub>2</sub>=842.36 days, sd=801.66 days)  $t(170.06)=7.19, p<.001$ ). Death by suicide was not associated with contact with statutory services ( $X^2(1, N=222)=0.01, p >.05$ ), counselling provided ( $X^2(1, N=236)=3.23, p >.05$ ), or Lifeline follow on support offered (in terms of check ins and / or counselling support offered) ( $X^2(1, N=236)=1.46, p >.05$ ).

[Insert Table 4 about here]

## *Health*

Chi-square tests were used to examine the association between death by suicide and each of the health predictors and substance dependence was associated with a higher likelihood of death in this group. There was no significant association between death by suicide and depression ( $X^2(1,$

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$N=194$ )=0.75,  $p > .05$ ), anxiety ( $X^2$  (1,  $N=194$ )=0.03,  $p > .05$ ), personality disorder ( $X^2$  (1,  $N=194$ )=0.02,  $p > .05$ ), psychosis ( $X^2$  (1,  $N=194$ )=0.17,  $p > .05$ ), illness or disability ( $X^2$  (1,  $N=198$ )=0.07,  $p > .05$ ), and using prescribed medication (which may have been for a physical or mental health difficulty) ( $X^2$  (1,  $N=172$ )=2.10,  $p > .05$ ).

[Insert Table 5 about here]

### *Binary Logistic Regression*

A binary logistic regression analysis was conducted with the likelihood of death by suicide of Lifeline clients as the outcome variable and each of the predictor variables that had emerged as significant within the chi-square and t-test analyses (sexual orientation, prior suicidal thoughts and behaviours, number of previous attempts, check-ins provided, referrals-out made, duration of access and substance dependence). As deceased clients and the control group were individually matched on the variables of age and gender, these variables were not included as co-variates in the analysis. The predictors together reliably distinguished between deceased and not deceased ( $X^2$  (7,  $N=164$ )=57.26,  $p < .001$ ) and accounted for a moderate 40% of the variance between the two groups. The predictive success overall was 77% (69% for deceased and 84% for not deceased). The model demonstrates that a previous suicide attempt, check-in calls, duration of service access and substance dependence made a significant contribution to prediction of death by suicide (all  $p < 0.05$ ). Clients who had check-in calls provided were 3.33 (1/.30) times less likely to die by suicide. The duration of service access had a negative association, for every 100 days that clients used the service, they were 0.20 times less likely to die by suicide. Clients with a substance dependence were 4.22 times more likely to die by suicide, and those with a previous suicide attempt, 3.17 times more likely to die by suicide. The other variables in the above list were not statistically significant predictors.

[Insert Table 6 about here]

## **Discussion**

## Crisis line service users who have died by suicide

The research sought to understand the characteristics of the Lifeline, crisis line, service users who have died by suicide. The results confirm that increased check-in calls, and longer service use duration, were associated with a lower likelihood of death by suicide, therefore supporting the use of these strategies to reduce risk in this population. A study of a US crisis line found that 43.2% of callers continued to express suicidal ideation a few weeks after the initial call, and almost 3% made an attempt, after their call (Gould et al., 2007). Together these studies highlight the need to encourage long-term engagement with follow-up support following the initial contact with a crisis line. In keeping with suicide patterns in NI (O'Neill et al., 2016) and theories of suicide (Joiner, 2005, O'Connor & Nock, 2014, VanOrden et al., 2010), those with previous suicide attempts were 3.2 times more likely to die by suicide than those with no previous attempts. Suicide attempt is believed to increase the risk of death by suicide by increasing the person's capability of harming themselves (Joiner, 2005), and the provision of additional services and check-in support suggests that the person is receiving support to increase their sense of connectedness, which is believed to decrease suicide risk (Joiner, 2005, O'Connor & Nock, 2014).

Those who reported substance dependence were 4.2 times more likely to die by suicide and substance use is a feature of suicides in NI generally with alcohol known to be present in 41% of those who died by suicide (O'Neill et al., 2016). Substance disorder rates in NI are high (3.5 %) when compared with other countries (Bunting, Murphy, O'Neill & Ferry, 2013) and are associated with the legacy of the conflict (O'Neill et al., 2015). In addition to the risk of substance disorders as mental illnesses, and their co-morbidity with other mental disorders, alcohol and drugs reduce inhibition, thereby increasing the likelihood of suicidal behaviour around the time of intoxication. The provision of crisis response services to people who use substances may be perceived as challenging, nonetheless, this finding confirms the importance of ensuring that substance users or those who are under the influence of substances can benefit from availing of crisis line and follow-up suicide prevention services (Konner, Bagge, Goldston & Ilgen, 2014).

## Crisis line service users who have died by suicide

The majority (just over 60%) of the crisis line clients who had died by suicide were male, compared to 42% of Lifeline service users generally. There were also key differences in the age range of the deceased group, with 92% of the deceased aged 18-54 years, compared with 64% of the Lifeline service users generally. This is in line with NI suicide statistics where the rates of suicide were highest in those aged 20–50 years (O’Neill et al., 2014). Sixty-four percent of the deceased group presented on first call with issues of suicidal ideation or behaviours, compared with 27% of the total service user population, thereby supporting the need to support those who present with suicidal thoughts and behaviours. Presenting with suicidal thoughts and behaviours highlights high-risk of suicide in this population. However, it is by no means a definitive predictor, thus the current findings highlight the need for a thorough risk assessment amongst those who do not express suicidal thoughts at first presentation.

The variables identified in this study only predict 39.3% of the variance in suicide deaths. This aligns with the consensus that we should not rely on risk assessment scales or scores as a way of predicting death by suicide or determining who should receive follow-up services. This is in keeping with guidelines from the National Institute for Health and Care Excellence (NICE) (2011) on this issue, and recent papers on the matter (Chan et al., 2016, Runeson, Odeberg, Pettersson, Edbom, Adamsoon & Waern, 2017). Furthermore, the variables that were not statistically significant predictors of death by suicide in this group should not be discarded in any suicide assessment process. In keeping with a suicide risk mitigation approach, as recommended by Cole-King & Lepping (2010), information about these life events and variables should be collected routinely and systematically, and should be highlighted on client records as indicative of the need for intervention (such as safety planning, check-ins, and follow-up treatments).

## Limitations

## Crisis line service users who have died by suicide

Whilst the findings of this study give us an insight into some of the characteristics of crisis line service users who go on to die by suicide, it is important to note that even those who were alive at the time of the study may subsequently take their lives. Assessments of prior suicidal thoughts and behaviours were based on voluntary reports from clients, or their responses to queries from Lifeline staff. Although it cannot be determined which is actually accurate, there is evidence that self-reports of suicidal behaviour and previous attempts varies depending on how the question is asked (single-item assessments of suicide attempt history versus multi item surveys or interviews) (Hom, Joiner & Bernert, 2015). This raises practical issues for data gathering in crisis situations.

This study is specific to this group of crisis line users only and the results are not generalizable to populations who use any of the numerous alternative types of mental health and listening services or helplines available. The data included in this study was gathered for clinical purposes to assist in the assessment and formulation of the most appropriate interventions for clients. In many cases the accuracy of self or professional diagnoses of mental and physical illness was not clear. For a number of variables, such as adverse life events and Lifeline supports offered, no detail was recorded of the proximity to the death. In addition, the variables we studied were not based on any theoretical framework of suicide, and many issues relating to suicide risk were not considered. For example, in terms of suicide risk assessment, Mitchell et al. (2017) recommend that perceived burdensomeness and thwarted belongingness may each be useful separate predictors of suicide ideation-related outcomes and should both be incorporated. The systematic collection of relevant data on symptoms, service use and history from service users is important so that data from these sources can be used to inform service provision, and crisis line counsellors should be trained to undertake this process. Theoretical frameworks should also guide the assessment and formulation of intervention strategies for people who may be suicidal.

Information on client records was found to be inconsistent and in some cases, information on certain variables was not available. As a result, there is a risk of the under estimation of certain

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variables or issues. Reports for many of the characteristics or experiences listed as high risk indicators for suicidal behaviour (Franklin et al., 2017) are often stigmatised (personally and socially) e.g. prior suicidal thoughts and behaviours (Carpiniello & Pinna, 2017). These characteristics and experiences are often under reported as the various forms of stigma represents a barrier to disclosure and help seeking, particularly amongst vulnerable groups (Carpiniello & Pinna, 2017, Clement et al., 2015). Also, certain trauma types may be less likely to be disclosed. Although based on a treatment seeking sample, event type and individual differences both appear important in understanding trauma disclosure, both sexual traumas and childhood trauma tend to be associated with a lower likelihood of disclosure in comparison with other trauma types (Bedard-Gilligan, Jaeger, Echiverri-Cohen & Zoellner, 2011). On a positive, in relation to this, stigma is not considered to be as prevalent as it once was, and awareness of anti-stigma interventions are associated with positive attitudes to disclosure and help-seeking across informal and formal domains (Henderson, Robinson, Evans-Lacko & Thornicroft, 2017). Attitudes to seeking professional help for a serious emotional problem are significantly associated with future help seeking and treatment use (Mojtabai, Evans-Lacko, Schomerus & Thornicroft, 2016). Furthermore, once engaged with professionals, those with a lifetime history of suicidal behaviour report increased honesty in interactions with mental health professionals as opposed to society in general (Hom, Stanley, Podlogar & Joiner, 2017).

## Conclusions

Suicide crisis lines are a key elements of numerous national suicide prevention strategies. This is the first study to offer an insight into the characteristics and circumstances of the deaths by suicide of Lifeline clients in a region of the UK where suicide rates are the highest and rising (Samaritans, 2017). This study demonstrates that risk assessment variables can differentiate those crisis line service users who die by suicide from those who are currently alive, among those who have sought support and are known to services.

## Crisis line service users who have died by suicide

The identification of factors pertinent to suicide risk and behaviour remains a crucial research objective in assisting formulation of appropriate, innovative and cost-effective intervention strategies and improving engagement with services for this at-risk group. The ability to accurately predict who will die by suicide continues to elude us and the variables identified should not be used to determine which clients should receive follow-up services (Large, Ryan, Carter & Kapur, 2017). Services such as crisis lines and follow-up services, are seen as important in efforts to reduce the rates of suicide (Hogan & Grumet, 2016), and the current findings support the need for continued encouragement of users to engage with services. This might include features such as clinician outreach, check-in support and long-term follow-up as part of a care management plan for all callers. As is noted by Appleby et al. (2016), despite the identification of high-risk groups for suicide, what puts a patient at risk is often individual, suggesting that treatments and support strategies should be personalised.

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Table 1: Demographics and death by suicide

	Alive		Deceased		Chi-square
	Obs	Exp	Obs	Exp	
Heterosexual	89	92.7	88	84.3	$(X^2 (1, N=189) 4.92, p <.05)$
Non-Heterosexual	10	6.3	2	5.7	

Key: Obs=observed frequency, Exp=expected frequency

Table 2: Prior self-harm and suicidal behaviour and death by suicide

	Alive		Deceased		Chi-square
	Obs	Exp	Obs	Exp	
No prior suicidal ideation	11	7.2	3	6.8	$(X^2 (1, N=224) 4.43, p <.05)$
Prior suicidal ideation	104	107.8	106	102.2	
No previous suicide attempt	30	24.4	16	21.6	$(X^2 (1, N=215) 3.49, p <.05)$
Previous suicide attempt	84	89.6	85	79.4	

Key: Obs=observed frequency, Exp=expected frequency

Table 3: Service access and death by suicide

	Alive		Deceased		Chi-square
	Obs	Exp	Obs	Exp	
No check ins provided	49	65.5	82	65.5	$(X^2 (1, N=236) 18.68, p <.001)$
Checkins provided	69	52.5	36	52.5	
No emergency referral out made	55	66.5	78	66.5	$(X^2 (1, N=236) 9.11, p <.01)$
Emergency referral out made	63	51.5	40	51.5	

Key: Obs=observed frequency, Exp=expected frequency

Table 4: Health and death by suicide

	Alive		Deceased		Chi-square
	Obs	Exp	Obs	Exp	
No substance dependence	50	41.6	24	32.4	$(X^2 (1, N=201) 6.13, p <.01)$
Substance dependence	63	71.4	64	55.6	

Key: Obs=observed frequency, Exp=expected frequency

Crisis line service users who have died by suicide

Table 5: Binary Logistic Regression predicting death by suicide versus remaining alive

Demographics	Death by suicide
N = 739	OR (95% CI)
Sexuality (Heterosexual Non-Heterosexual)	0.25 (0.02-3.04)
Prior suicidal ideation (no versus yes)	8.93 (0.80-99.79)
Previous suicide attempt (no versus yes)	3.17* (1.12-8.97)
Check-ins provided (no versus yes)	0.30* (0.12-0.72)
Emergency referral out made (no versus yes)	0.82 (0.33-2.00)
Duration of service access	0.99*** (1.00-1.00)
Substance dependence (no versus yes)	4.22** (1.71-10.41)

Key: \*=p<.05, \*\*=p<.01, \*\*\*=p<.001

Table 6: Gender, age and main presenting issue on referral of the deceased versus the overall Lifeline population

	Lifeline total Population (N=40,700)	Deceased Group (n=118)
<i>Sex</i>		
Female	56.2% (n=22880)	30.5% (n=36)
Male	42.1% (n=17142)	60.5% (n=678)
Other	1.7% (n=678)	0% (n=0)
<i>Age Range</i>		
11 years and under	4.6% (n=1850)	0.9% (n=1)
12-17 years	13.4% (n=5436)	6.0% (n=7)
18-24 years	15.9% (n=6477)	21.4% (n=25)
25-34 years	17.0% (n=6900)	20.5% (n=24)
35-44 years	16.4% (n=6655)	23.1% (n=27)
45-54 years	15.2% (n=6189)	22.2% (n=26)
55-64 years	7.1% (n=2887)	5.1% (n=6)
65+ years	2.9% (n=1162)	0.9% (n=1)
Unknown	7.73% (n=3144)	0.9% (n=1)
<i>Main presenting issue on referral</i>		
Suicidal thoughts or behaviours	26.7% (n=8679)	64.4% (n=76)
Anxiety	15.3% (n=4975)	2.5% (n=3)
Depression	11.4% (n=3708)	6.8% (n=8)
Self-harm	3.9% (n=1283)	3.4% (n=4)
Other issues	42.7% (n=13899)	22.9% (n=27)