


# Socioeconomic Predictors of Crisis and Clinical Pathways Among People Contacting a Mental Health Crisis Line

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## ABSTRACT

**OBJECTIVE:** Crisis lines are the first mental health service contact point for many people, making them a vital community and public health intervention. Given the current and potential utility of crisis lines, better understanding the characteristics, socioeconomic factors and subsequent referral pathways of callers is critical to identifying targeted ways to improve such services.

**STUDY DESIGN:** The dataset captured calls to the Cheshire & Wirral Partnership NHS Foundation Trust (CWP) crisis line between August 2020 and August 2021. Calls were examined if self-harm, risk to self, or overdose were reported by the caller. Descriptive analyses were conducted to produce a clinical and demographic profile of the callers using the crisis line.

**RESULTS:** Call handlers were significantly more likely to call 999, hand over to a practitioner and less likely to provide advice and guidance if self-harm, risk to self or overdose was reported. Social issues were found to be significantly associated with all 3 outcomes: self-harm, risk to self and overdose.

**CONCLUSION:** The current study provides the first exploratory analysis of the socioeconomic factors and resultant care pathways for those contacting a UK crisis line service. The findings have important implications for community early intervention efforts to reduce self-harm and suicidal behaviours.

**KEYWORDS:** Crisis line, socioeconomic predictors, clinical pathways, mental health crisis

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## Introduction

Suicide remains a worldwide public health concern, with 5583 registered deaths by suicide in 2021 across England and Wales.<sup>1</sup> Suicidal thoughts and self-harm are associated with greater distress and are strong risk factors for death by suicide; indeed, individuals in crisis often need rapid care to minimise potential harm.<sup>2</sup> Crisis lines are increasingly being implemented as a standard component of a public health approach to suicide prevention.<sup>3,4</sup> Accessible and effective care is imperative, yet no organised or integrated system for crisis care exists in the United Kingdom.<sup>5,6</sup>

Current theories of suicidal thoughts and behaviours recognise the complex interplay of biological, psychological, environmental and cultural factors related to suicidality, which is best framed by the Integrated Motivational-Volitional (IMV) Model.<sup>7</sup> The IMV model includes 3 phases: pre-motivational, motivational and volitional. In brief, the pre-motivational phase describes background context, including socioeconomic and social factors, in which suicidal ideation may develop and self-harm behaviours might occur.<sup>8</sup> These factors may also make some people more or less likely to contact a crisis line service, but currently there is no work exploring this, particularly in a UK setting.

Many people experiencing suicidal crisis, however, do not seek help from face-to-face healthcare services.<sup>9,10</sup> Lack of help-seeking does not appear to be linked to lack of services or resources; rather, stigma and perceptions of self-harm (eg, being labelled as an ‘attention seeker’).<sup>9,11</sup> In other words, social and environmental factors may play a role. Crisis lines provide a confidential over-the-phone service that could assist in removing the barrier of stigma that could be preventing individuals from seeking support from services.

Evaluation of the efficacy of crisis lines, however, is challenging due to anonymity and related follow-up issues.<sup>12</sup> In response to this obstacle, researchers have evaluated effectiveness in a number of ways. Some research across America has focused on caller follow-up with mental health services, identifying that approximately 50% of callers followed through with seeking support from mental health services after a referral.<sup>13</sup> Conversely, other research has focused on safety outcomes as an indicator of effectiveness. For instance, Gould et al<sup>14</sup> reported significant decreases in suicidality of callers during the course of the telephone conversation and continued decreases in hopelessness and psychological pain in the following weeks.



Furthermore, a recent systematic review conducted by Hoffberg et al<sup>4</sup> examined the effectiveness of crisis line services across 33 studies. Positive effects of crisis lines were reported for both short-term and immediate outcomes (eg, changes in distress over the course of the call). However, the study concluded that high-quality long-term evidence demonstrating the effectiveness of crisis lines is lacking.<sup>4</sup> Also evident from the review was the overall lack of research into crisis lines within a UK National Health Service setting; a lacuna of previous research we aim to address in the current study.

The COVID-19 pandemic added additional pressures to existing services to support mental health during lockdowns. There was an overall reduction in services (including a lack of face-to-face support), and isolation and loneliness were most often reported by people attending EDs following self-harm during lockdown.<sup>15</sup> The effects of COVID are also long-standing within increases in anxiety, depression, suicidal ideation and sleep disorders.<sup>15</sup> As a result, crisis phonelines reported an increase in usage, with the charity 'Mind' indicating that the number of calls to their service doubled since the beginning of the first national lockdown.<sup>16</sup> Analysis of national phone services in Austria and Germany during the pandemic also noted similar findings.<sup>17</sup> The researchers reported an increase in calls at the same time government restrictions were imposed and, critically, a decrease in calls once restrictions were eased (ie, reopening of services, social contact allowed). However, while some evidence indicates an increase in demand on crisis team services generally since the COVID-19 pandemic, exploration into crisis line services within the UK has been limited.

#### *Cheshire & Wirral Partnership NHS Foundation Trust Crisis Line*

Launched in March 2020 as a key part of the Trust's Crisis Response Service, Cheshire and Wirral Partnership NHS Foundation Trust (CWP) introduced a free telephone service providing urgent mental health support to individuals of any age in self-defined crisis. Proactively supporting suicide prevention across the region is a key motive of the service.

CWP's crisis line is staffed by Registered Mental Health Nurses (RMN's) and Allied Health Professionals (eg, Occupational Therapists). Call handlers listen to the callers' concerns, proactively explore risk, and seek to collaboratively develop a plan to support the person in need, triaging them for accessible and appropriate support. Call handlers utilise an online biopsychosocial screening form to document each call.

In response to the COVID-19 pandemic, the national mandate accelerated the development and launch of these lines 12 months ahead of planned schedule. This was done to support and address the anticipated impact upon mental health, ensure parity to the physical health response and essentially to divert service users requiring mental health support away from EDs.

#### *Aims of current study*

Given the key role of crisis lines within a comprehensive public health strategy for suicide prevention, it is critical to better understand crisis line usage and develop a deeper understanding of the socioeconomic characteristics and triage outcomes of callers, in order to help inform service development. While anecdotal evidence indicates an increase in demand for crisis team services since the COVID-19 pandemic, no formal analysis has been conducted into the efficacy of UK crisis lines during the pandemic period. In order to address this, calls to the CWP crisis line for individuals who stated the issue to be self-harm, risk to self, or overdose were examined. The research questions were: what are the referral pathways for people calling the CWP crisis line for self-harm, risk to self, and/or overdose; and what socioeconomic factors are reported by those calling the CWP crisis line for self-harm, risk to self, and/or overdose?

## **Method**

### *Study design and participants*

Quantitative data for individuals who contacted the CWP Crisis Line between August 2020 and August 2021 were included in this analysis. Callers included children, young people, and adults. Within the Cheshire and Merseyside region, additional crisis line services exist specifically for either children and young people or adults. The CWP service, however, accepts calls from both children and young people, as well as adult callers. For the purpose of the current study, all calls where self-harm, risk to self, or overdose was recorded by the call handler were analysed.

The dataset only captured entries made in clinical records. This required the calls to have been answered and a biopsychosocial screening form to have been completed by the call handler. Ethical approval was granted by NHS Health Research Authority, Integrated Research Application System (IRAS: 298507).

### *Procedure*

Data was collated and organised by administrators within CWP and sent to the research team in a password-protected file. Data received from the Trust were anonymised and non-identifiable. Table 1 shows the data available from CWP. Certain variables were pre-grouped by CWP, for example age was grouped from 0 to 18 years, 19 to 25 years, etc. No further information was available regarding the specific ages of callers. For the purpose of this paper, we have renamed the variable '≤18 years'.

### *Data analysis and preliminary data*

Quantitative data analysis was conducted using Statistical Package for Social Sciences (SPSS) software V27. Descriptive analyses were conducted to produce a clinical and demographic

**Table 1.** Data extracted from CWP crisis line.

VARIABLE	DESCRIPTION
Call information	Call volume, call source and call time.
Demographic characteristics	Age, gender, clinical commissioning group (CCG) borough, ethnicity.
Service user characteristics	Known, unknown and frequent callers.
Clinical concerns	Nature of calls, key themes, COVID-19 related calls.
Caller journey	Destination following contact, repeat presentation to crisis line or other crisis service, single presentations/resolution of concerns.
Serious incidents	Incidents of self-harm or death by suicide following contact with crisis line.
Impact on wider services	Liaison mental health services, police, ambulance, third sector.

profile of the callers using the crisis line. Chi-squared analyses were conducted to examine the association between self-harm, risk to self, overdose and call handler triage outcomes. Further chi-squared analyses were conducted to explore the association between various socioeconomic factors and the outcomes of self-harm, risk to self and overdose.

## Results

### *Descriptive analysis*

There were 25 106 calls recorded between August 2020 to August 2021. Risk to self was noted as the reason for calling for 10.2% of calls (N=2561). Self-harm made up 7.9% of calls (N=1983) and overdose was recorded for 435 callers (1.7%). The additional 20 127 calls related to other reasons such as 'mood', 'problems with thoughts', 'relationship' and 'physical health'. For the purpose of this paper, only calls where risk to self, self-harm and/or overdose were included (N=4979). The majority of calls handled by CWP Crisis Line were from women (57.0%), whilst very few callers reported being non-binary (0.1%). The highest proportion of calls were from people aged 50 to 59 years (23.3%), followed by people aged 0 to 18 years (15.9%). The overwhelming majority of calls were from people who indicated they were from white British ethnic backgrounds (74%). Of the 25 106 calls made to the crisis line, only 392 (0.2%) were from people from ethnic minority backgrounds; although, there was a very high level of missing data for the ethnicity variable (20.0%).

### *Self-harm and call handler triage outcome*

Pearson's Chi-squared analyses were conducted to examine the association between reported self-harm by callers and call handler triage outcomes. Specifically, the chi-squared assessed the proportion of people who comprised a particular category (eg, '999 called') compared to the proportion of people who would

be expected to be in that category if triage outcome was unrelated to self-harm status.

As shown in Table 2, Pearson's Chi-squared analysis showed that call handlers were significantly more likely to personally call 999 ( $\chi^2=339.10$ ) and significantly less likely to give advice or guidance when self-harm was reported ( $\chi^2=454.16$ ). Call handlers were also significantly more likely to hand the caller over to a practitioner if self-harm was reported ( $\chi^2=47.88$ ), compared to if no self-harm was reported by the caller.

### *Risk to self and call handler triage outcome*

Table 3 presents findings from a Pearson's Chi-squared analysis examining the association between reported risk to self and call handler triage outcome. Call handlers were significantly more likely to call 999 if the caller reported risk to self ( $\chi^2=615.37$ ) and significantly less likely to provide advice and guidance ( $\chi^2=946.40$ ). Callers were also significantly more likely to be advised to call 999 ( $\chi^2=11.75$ ), 111 ( $\chi^2=4.57$ ) or contact their GP ( $\chi^2=7.30$ ) if risk to self was reported. Call handlers were significantly less likely to hand the caller over to a practitioner if risk to self was not reported ( $\chi^2=157.42$ ). Known callers were significantly more likely to be handed over to their current team if risk to self was reported ( $\chi^2=11.0$ ). Callers reporting risk to self were also significantly more likely to be signposted to ED ( $\chi^2=12.26$ ), signposted to third sector organisations ( $\chi^2=5.20$ ) and to be referred to home treatment teams ( $\chi^2=4.69$ ), compared with callers not reporting risk to self.

### *Overdose and call handler triage outcome*

As shown in Table 4, call handlers were significantly more likely to call 999 if the caller reported an overdose ( $\chi^2=1246.59$ ) and significantly less likely to provide only advice and guidance ( $\chi^2=338.19$ ), compared to if callers did not report overdose. Callers reporting an overdose were also significantly more likely to be advised to call 999 ( $\chi^2=80.36$ ), 111 ( $\chi^2=46.84$ ) or contact their GP ( $\chi^2=39.86$ ). If overdose was not reported by the caller, call handlers were significantly less likely to hand over to a practitioner ( $\chi^2=64.61$ ). However, if overdose was reported, call handlers were significantly more likely to signpost the individual to services such as EDs ( $\chi^2=74.29$ ), CYP services ( $\chi^2=54.30$ ), single point of access ( $\chi^2=12.35$ ) and third sector organisations ( $\chi^2=62.40$ ). Those contacting CWP crisis line were also significantly more likely to be referred to other additional services, for example adult mental health services ( $\chi^2=29.04$ ), CYP ( $\chi^2=72.74$ ), home treatment teams ( $\chi^2=47.18$ ), IAPT ( $\chi^2=11.92$ ) or single point of access ( $\chi^2=34.61$ ), if overdose was reported.

### *Socioeconomic factors and self-harm*

Pearson's Chi-squared analysis was then conducted to explore the association between a number of socioeconomic factors and reported self-harm by callers to the CWP crisis line. As shown

**Table 2.** Pearson's Chi-squared analyses of association between reported self-harm and call handler triage outcome (N=25 106 calls).

TRIAGE OUTCOME	SELF-HARM NUMBER OF CALLS (%).	NO SELF-HARM NUMBER OF CALLS (%).	$\chi^2$ (1 DF)	P
Handler called 999	150 (7.6)	353 (1.5)	339.10	<.001**
Advice/guidance only	820 (41.4)	15 114 (65.4)	454.16	<.001**
Advised to call 999	37 (1.9)	360 (1.6)	1.12	.290
Advised to call 111	21 (1.1)	119 (0.9)	0.83	.363
Advised to contact GP	62 (3.1)	745 (3.2)	0.14	.933
Handed over to practitioner	257 (13.0)	1939 (8.4)	47.88	<.001**
Known patient handed over to current team	48 (2.4)	507 (2.2)	0.44	.508
Signposted to emergency department (ED)	41 (2.1)	376 (1.6)	2.18	.140
Signposted to children and young people's service (CYP)	14 (0.7)	130 (0.6)	0.66	.416
Signposted to single point of access	7 (0.4)	62 (0.3)	0.48	.488
Signposted to third sector organisation	23 (1.2)	216 (0.9)	0.99	.320
Referred to adult mental health team	9 (0.5)	77 (0.3)	0.78	.377
Referred to children and young people's service (CYP)	14 (0.7)	133 (0.6)	0.54	.464
Referred to home treatment teams (HTT)	21 (1.1)	198 (0.9)	0.87	.352
Referred to improving access to psychological therapies (IAPT) services as new referral	4 (0.2)	45 (0.2)	0.01	.945
Referred to older adult mental health team	2 (0.1)	13 (0.1)	0.61	.435
Referred to single point of access	9 (0.5)	84 (0.4)	0.41	.524

\*\*p<.001.

in Table 5, self-reported social problems were significantly associated with callers reporting self-harm ( $\chi^2=70.62$ ).

#### *Socioeconomic factors and risk to self*

Table 6 presents findings from a Pearson's Chi-squared analysis exploring the association between socioeconomic factors and reported risk to self. The majority of socioeconomic factors explored were significantly associated with risk to self. For example, callers to the CWP crisis line indicating issues with alcohol ( $\chi^2=17.86$ ), bereavement ( $\chi^2=15.01$ ), COVID ( $\chi^2=6.07$ ), finances ( $\chi^2=5.07$ ), housing ( $\chi^2=14.59$ ), medication ( $\chi^2=13.44$ ), physical health ( $\chi^2=20.75$ ) and social factors ( $\chi^2=221.17$ ) were significantly more likely to report risk to self.

#### *Socioeconomic factors and overdose*

A final Pearson's Chi-squared analysis was conducted to examine the association between reported overdose and socioeconomic factors (Table 7). All socioeconomic factors explored in this analysis were significantly associated with whether the caller reported overdose. Although significant, a weaker association was found between callers reporting issues with gambling and overdose ( $\chi^2=10.05$ ).

## Discussion

The current study aimed to examine the sociodemographic predictors and subsequent referral pathways for people calling the CWP crisis line reporting self-harm, risk to self, or overdose. This exploratory study provided detailed information about a population that has been the focus of attention due to concern about a rise in suicide and self-harm before and during the pandemic, and the public health priority given to reduce national suicide rates.

#### *Call handler triage outcomes*

Call handlers were significantly more likely to personally call 999 if self-harm, risk to self or overdose was reported by callers. Callers to the CWP crisis line were more likely to be signposted to emergency services if risk to self or overdose was present, while referral to additional services, such as home treatment teams, were more likely if an overdose was reported.

Prior literature has highlighted how crisis line staff often feel reluctant to probe for suicidal thoughts and/or behaviours during calls.<sup>18</sup> This reluctance has been shown across a range of different mental health professionals due to fear that asking about suicide or self-harm will increase distress,<sup>19</sup> despite this not being the case.<sup>20,21</sup> Indeed, asking questions about

**Table 3.** Pearson's Chi-squared analyses of association between reported risk to self and call handler triage outcome (N=25 106 calls).

TRIAGE OUTCOME	RISK TO SELF NUMBER OF CALLS (%).	NO RISK TO SELF NUMBER OF CALLS (%).	$\chi^2$ (1 DF)	P
Handler called 999	218 (8.5)	285 (1.3)	615.37	<.001**
Advice/guidance only	915 (35.7)	15019 (66.6)	946.40	<.001**
Advised to call 999	61 (2.4)	336 (1.5)	11.75	<.001**
Advised to call 111	32 (1.2)	118 (0.8)	4.57	.032*
Advised to contact GP	105 (4.1)	702 (3.1)	7.30	.026*
Handed over to practitioner	394 (15.4)	1802 (8.0)	157.42	<.001**
Known patient handed over to current team	80 (3.1)	475 (2.1)	11.00	<.001**
Signposted to ED	64 (2.5)	353 (1.6)	12.26	<.001**
Signposted to children and young people's service (CYP)	21 (0.8)	123 (0.5)	3.04	.081
Signposted to single point of access	7 (0.3)	62 (0.3)	0.00	.988
Signposted to third sector organisation	35 (1.4)	204 (0.9)	5.20	.023*
Referred to adult mental health team	9 (0.4)	77 (0.3)	0.01	.935
Referred to children and young people's service (CYP)	22 (0.9)	125 (0.6)	3.67	.056
Referred to home treatment teams (HTT)	32 (1.2)	187 (0.8)	4.69	.030*
Referred to improving access to psychological therapies (IAPT) services as new referral	6 (0.2)	43 (0.2)	0.22	.636
Referred to older adult mental health team	2 (0.1)	13 (0.1)	0.16	.688
Referred to single point of access	12 (0.5)	81 (0.4)	0.74	.388

\*p&lt;.05, \*\*p&lt;.001.

self-harm is essential to understand risk and ensure appropriate and effective referrals. Despite suicide prevention being a key focus of the service, the questions included in the biopsychosocial screening form were limited in relation to suicide. Services and future research may benefit from developing specific questions around suicide-related behaviours and thoughts to better understand the complexities and multifaceted nature of suicide, such as intent and frequency of self-harm.

Few studies have examined client referral pathways following contact with crisis line services. One reason for this is due to the anonymity of the service, which limits the ability to follow-up callers after contact.<sup>22</sup> Boness et al<sup>23</sup> examined various aspects of calls to a United States crisis line over a 12-month period, including call length, caller characteristics, and referrals. The authors reported that crisis line staff directed callers to external agencies for services/information not provided by the crisis line centre. Notably, callers may have been provided with multiple referrals on one call. The findings from the current study extend on this work by identifying the specific services callers were referred onto, such as older adult mental health, or CYP services. The current study reported referrals into such services to be more likely when overdose

was reported by callers, with home treatment teams being the most common referral pathway.

An interesting finding from this study is the lack of association between reported self-harm by callers and signposting to EDs from the CWP call handlers. Methodologically this may be due to the low base number of self-harm callers who were referred to emergency services. Alternatively, it may reflect that self-harm is able to be managed appropriately in the community, whereas overdose may require medical attention from an ED setting. In support of this, Buykx et al<sup>24</sup> reported medication overdoses account for over 80% of hospital presentations. Further research is needed to explore the reasons behind these findings.

#### *Socioeconomic factors*

Data were also explored in relation to socioeconomic factors and reported self-harm, risk to self, and overdose for callers of the CWP crisis line. Findings revealed a significant association between social problems and reported self-harm by callers; however, there were no significant associations between self-harm and the other socioeconomic categories. The majority of

**Table 4.** Pearson's Chi-squared analyses of association between reported overdose and call handler triage outcome (N=25 106 calls).

TRIAGE OUTCOME	OVERDOSE NUMBER OF CALLS (%).	NO OVERDOSE NUMBER OF CALLS (%).	$\chi^2$ (1 DF)	P
Handler called 999	111 (25.5)	392 (1.6)	1246.59	<.001**
Advice/guidance only	93 (21.4)	15 841 (64.2)	338.19	<.001**
Advised to call 999	30 (6.9)	367 (1.5)	80.36	<.001**
Advised to call 111	17 (3.9)	203 (0.80)	46.84	<.001**
Advised to contact GP	37 (8.5)	770 (3.1)	39.86	<.001**
Handed over to practitioner	85 (19.5)	2111 (8.6)	64.61	<.001**
Known patient handed over to current team	33 (7.6)	522 (2.1)	59.17	<.001**
Signposted to ED	30 (6.9)	387 (1.6)	74.29	<.001**
Signposted to children and young people's service (CYP)	14 (3.2)	130 (0.5)	54.30	<.001**
Signposted to single point of access	5 (1.1)	64 (0.3)	12.35	<.001**
Signposted to third sector organisation	20 (4.6)	219 (0.9)	62.40	<.001**
Referred to adult mental health team	8 (1.8)	78 (0.3)	29.04	<.001**
Referred to children and young people's service (CYP)	16 (3.7)	131 (0.5)	72.74	<.001**
Referred to home treatment teams (HTT)	17 (3.9)	202 (0.8)	47.18	<.001**
Referred to improving access to psychological therapies (IAPT) services as new referral	4 (0.9)	45 (0.2)	11.92	<.001**
Referred to older adult mental health team	1 (0.2)	14 (0.1)	2.15	.143
Referred to single point of access	9 (2.1)	84 (0.3)	34.61	<.001**

\*\*p&lt;.001.

**Table 5.** Pearson's Chi-squared analyses of association between reported self-harm and socioeconomic factors (N=25 106 calls).

SOCIOECONOMIC FACTORS	SELF-HARM NUMBER OF CALLS (%).	NO SELF-HARM NUMBER OF CALLS (%).	$\chi^2$ (1 DF)	P
Alcohol	102 (5.1)	1219 (5.3)	0.06	.806
Bereavement	43 (2.2)	426 (1.8)	1.06	.303
COVID-related	32 (1.6)	297 (1.3)	1.53	.216
Employment	14 (0.7)	128 (0.6)	0.76	.385
Financial	22 (1.1)	202 (0.9)	1.15	.284
Gambling	2 (0.1)	32 (0.1)	0.19	.663
Housing	43 (2.2)	421 (1.8)	1.22	.270
Medication	98 (4.9)	1137 (4.9)	0.00	.961
Other social factors	107 (5.4)	1276 (5.5)	0.05	.819
Physical health	108 (5.4)	1301 (5.6)	0.11	.738
Social	292 (14.7)	2076 (9.0)	70.62	<.001**
Unemployment	12 (0.6)	91 (0.4)	2.00	.157

\*\*p&lt;.001.

**Table 6.** Pearson's Chi-squared analyses of association between reported risk to self and socioeconomic factors (N=25 106 calls).

SOCIOECONOMIC FACTORS	RISK TO SELF NUMBER OF CALLS (%).	NO RISK TO SELF NUMBER OF CALLS (%).	$\chi^2$ (1 DF)	P
Alcohol	180 (7.0)	1131 (5.1)	17.86	<.001**
Bereavement	73 (2.9)	396 (1.8)	15.01	<.001**
COVID-related	47 (1.8)	282 (1.3)	6.07	.014*
Employment	21 (0.8)	121 (0.5)	3.28	.070
Financial	33 (1.3)	191 (0.8)	5.07	.024*
Gambling	3 (0.1)	31 (0.1)	0.07	.791
Housing	72 (2.8)	392 (1.7)	14.59	<.001**
Medication	164 (6.4)	1071 (4.8)	13.44	<.001**
Other social factors	189 (7.4)	1194 (5.3)	19.19	<.001**
Physical health	194 (7.6)	1215 (5.4)	20.75	<.001**
Social	450 (17.6)	1918 (8.5)	221.17	<.001**
Unemployment	14 (0.5)	89 (0.4)	1.30	.254

\*p&lt;.05, \*\*p&lt;.001.

**Table 7.** Pearson's Chi-squared analyses of association between reported overdose and socioeconomic factors (N=25 106 calls).

SOCIOECONOMIC FACTORS	OVERDOSE NUMBER OF CALLS (%).	NO OVERDOSE NUMBER OF CALLS (%).	$\chi^2$ (1 DF)	P
Alcohol	62 (14.3)	1259 (5.1)	71.79	<.001**
Bereavement	33 (7.6)	436 (1.8)	78.96	<.001**
COVID-related	25 (5.7)	304 (1.2)	67.38	<.001**
Employment	14 (3.2)	128 (0.5)	55.39	<.001**
Financial	18 (4.1)	206 (0.8)	52.74	<.001**
Gambling	3 (0.7)	31 (0.1)	10.05	.002*
Housing	32 (7.4)	431 (1.8)	74.04	<.001**
Medication	59 (13.6)	1176 (4.8)	70.72	<.001**
Other social factors	63 (14.5)	1320 (5.4)	68.49	<.001**
Physical health	63 (14.5)	1346 (5.5)	65.76	<.001**
Social	89 (20.5)	2279 (9.2)	63.020	<.001**
Unemployment	9 (2.1)	94 (0.4)	29.809	<.001**

\*p&lt;.05, \*\*p&lt;.001.

socio-demographic factors explored were significantly associated with risk to self and overdose. The final analysis revealed that all socio-demographic factors examined were significantly associated with reported overdose by callers. It will be important in future research to explore potential differences in the determinants of self-harm versus other types of risk to self.

Consistent with previous literature and highlighted within the IMV model, a number of socio-demographic factors have regularly been associated with individuals beginning to self-harm. For example, research findings have supported the association between life events such as financial, employment, and housing difficulties and deliberate self-harm.<sup>25,26</sup> Much

research has also shown a significant association between issues with alcohol and subsequent self-harming behaviour.<sup>27,28</sup> Developing on previous research, the current study provides convergent evidence that socioeconomic factors, broadly, are key drivers of mental health problems and lead to increased demand for services.

It has been acknowledged in prior research that existing evidence is limited by the narrow focus on certain socioeconomic factors, such as employment and education. It is vital that research considers a range of socioeconomic factors across all domains of the IMV model, to better understand the profile of callers using crisis line services. In particular, better understanding of the predictors of self-harm related calls is essential to not only develop ways of best responding to these callers and providing appropriate care pathways, but also to inform early intervention efforts to ensure effective support is available in the community to prevent crisis. The current study is an important first step in exploring this by focusing on a range of socioeconomic factors and how instances of self-harm are handled by crisis line services. Future work would benefit from understanding the economic impact of self-harm on crisis line services, as well as the impact of the services on people's mental health after contact. It would also be beneficial for further studies to explore cumulative risk exposure, which accounts for the issue presented in the IMV model that risk factors are likely to occur in isolation, but instead overlap and interact with each other.<sup>29</sup>

Findings from the current study are also particularly relevant to the COVID-19 pandemic. Government responses to the pandemic resulted in restrictions to social activities and gatherings in an attempt to reduce the spread of the virus. Results from the current study indicated a significant association between social issues and reported self-harm, risk to self and overdose. Similar to these findings, research has consistently highlighted a reduction of services (including absence of face-to-face support), isolation and loneliness were reported most frequently by people attending EDs following self-harm during lockdown.<sup>15,30</sup> Findings thus emphasise the importance of social connectivity and interaction to reduce self-harming behaviours and pressure on services.

### *Strengths and limitations*

This study has several strengths and provides significant contributions to the existing evidence base by helping to better understand the socioeconomic characteristics of and subsequent caller triage outcomes for people contacting crisis line services for self-harm, risk to self or overdose. This information can help to inform early identification strategies to determine who may be at risk of self-harm, as well as ensuring more effective targeting of resources and interventions to those services most commonly referred to. These findings, however, should be considered within the context of some methodological limitations. Firstly, the relatively small sample size of those callers reporting self-harm, risk to self or overdose limits statistical

power and so results should be interpreted with caution. The sample is also limited to only those people seeking support from only the CWP crisis line, which may limit generalisability to those utilising other crisis helpline services, and people who do not seek support. Moreover, the overdose measure did not distinguish between accidental and deliberate overdose; thus, not all instances in this category may be deliberate self-harm. Despite these limitations, this exploratory study has provided insight and understanding into this patient group and referral pathways using rarely studied data. It therefore provides a basis for further work in this area, utilising larger samples and multiple NHS Trusts across various regions in the United Kingdom.

### *Clinical implications*

The current study offers a unique insight into the socioeconomic characteristics and triage outcomes of callers to the CWP crisis line reporting self-harm, risk to self and overdose. Our findings highlight a number of socioeconomic factors to be significantly associated with callers reporting self-harm, risk to self or overdose. A better understanding of the precipitating factors to self-harm calls can inform early identification efforts and ensure effective community prevention strategies. Furthermore, the findings provided an understanding of the caller journey and common referral pathways after contact with CWP crisis line. This can be valuable information for service commissioners and funding efforts to ensure accurate and effective targeting of resources to services commonly used after contact with crisis lines. The evidence arising from this study about the role of diffuse types of socioeconomic factors raises issues for the required competencies of call handlers. Consideration should be given to adapting training for call handlers to facilitate informed supportive discussions with callers about this wide range of contributory factors.

Since the CWP crisis line service was implemented 12 months ahead of schedule in response to the COVID-19 pandemic, important clinical implications can also be gained in terms of developing the data collected from the service. Improving the data routinely collected by call handlers can benefit both services and research into suicide prevention. Mental health crisis coding has been identified as an issue in NHS settings,<sup>31</sup> the current study highlights that more specific codes could be implemented to better understand where callers are being signposted to following contact with the crisis line. More data captured on the context of advice given by call handlers, and further longitudinal data to capture follow-up users of the crisis line would aid a further understanding of what support and signposting services are effective for those reporting self-harm. Services may also benefit from additional questions related to suicide and self-harm since suicide prevention is a key focus of the service. For example, there was no data available related to whether the caller was experiencing suicidal thoughts. Since suicidal ideation is a key risk factor for self-harm and suicidal behaviour,<sup>2</sup> services and research would



benefit from better understanding the caller characteristics and referral pathways for those in suicidal crisis.

## Conclusion

The current study provides the first exploratory analysis into the socioeconomic factors and caller triage outcomes for those contacting a UK crisis line service reporting self-harm, risk to self or overdose. The findings have important implications for crisis line service delivery and community early intervention efforts to reduce self-harm and suicidal behaviours. Of particular importance, the study identified the services callers are being referred into most frequently, which can have significant implications for commissioning and funding arrangements. However, we do acknowledge the highly exploratory nature of the study and call for similar research to be conducted on a larger and broader scale in order to confirm the results.

## Author Contributions

MM, JM, PS were involved in the data analysis. All authors contributed to the write up of the paper.

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